FILE

RFI
WORK PLAN
ADDENDUM REPORT

for

INDUSTRIAL SERVICE CORPORATION
1633 Marsh Avenue
Blue Summit, Missouri

Docket Number VII-94-0024

Prepared by:

Deffenbaugh Industries, Inc.
18181 West 53rd Street
Shawnee Kansas, 66217

April 13, 1999

Revised
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STATE OF MISSOURI
JAMES M COSSAIRT
1-27-00
RG 0775
REGISTERED GEOLOGIST

Revised
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ATTACHMENTS

INTRODUCTION

Soil borings and monitor wells were installed at the locations proposed following methodology approved in the RFI work plan. Contaminant extent soil borings on the north and west of the facility were installed during field activities associated with closure which were conducted in 1995. Monitor wells GW-8A and GW-8B were installed at that time. Soil borings investigating the contaminant extent on the south of the facility were installed during field activities conducted during the fall of 1997. Shallow investigation borings in the parking area south of the facility, as well as in the drainage ditch along Marsh Avenue north of the facility, were also installed during these activities. Monitor wells GW-9A, GW-9B, GW-10A, and GW-10B were incorporated into this investigation by a letter modification and were installed during the fall of 1997 field activity. Soil borings installed beneath the office and laboratory building were also incorporated by letter modification. These borings were installed during field activity conducted in March of 1998. Groundwater samples were also collected for laboratory analysis during March of 1998. Figure 1 is map of the site depicting the locations of buildings and tanks as well as the locations of monitor wells.

Soil, water, and product samples collected for this investigation were transferred under chain-of custody to Quality Analytical Services (QAS) for laboratory analysis. Laboratory analysis results for samples collected in 1997 and 1998 were reviewed for data validity by Midwest Research Institute (MRI). These samples were collected and processed in accordance with procedures approved in the RFI work plan. Copies of the data validation reports along with tables summarizing the results of the analysis are enclosed with this submission. These tables and reports were previously conveyed to both agencies, along with copies of the analytical data, for a review of the data validity and consideration of a proposal for corrective action.

Results obtained from field activities conducted in 1995 did not receive the data validation review required by the subsequently approved RFI work plan. All samples are reported as non-detect for all constituents analyzed. These results, associated field documentation, and laboratory QA/QC reports were reviewed by the EPA and the MDNR in order to evaluate the validity of the data for inclusion in the RFI.

The agencies review of these data validation issues has been completed, and the resulting data set has been evaluated for completeness. This submission is prepared to present an understanding of the level of contamination which currently exists at the site as well as to identify potential gaps in the data collected to date. A work plan addendum is also prepared and submitted which is designed to fill these data gaps.

ANALYTICAL RESULTS

Soil analytical data collected in 1995 was found to be valid for the purposes of the RFI with the exception of herbicide and pesticide fractions. Soil data collected in 1997 was also found to be usable for all fractions with the exception of pesticides. Soil data collected in 1998 from borings installed beneath the building (which is located on-site) were found to be valid with the exception of pesticides as well as semi-volatile organics. Groundwater samples collected in 1998 were found to be valid for all fractions analyzed.

The data has been tabulated for each fraction by location, depth, and constituents detected. Samples reported as non-detect are not included in the tables. Concentrations are reported in milligrams per kilogram (mg/Kg) for soil samples and micrograms per liter (ug/L) for water samples. Industrial and residential screening levels are also included for ease of reference. Figures have also been prepared to diagrammatically depict the results of analysis. The following is presented to summarize the results by media and fraction.

VOLATILE ORGANICS IN SOIL

Table 2-1 presents the results of analysis for volatile organic constituents in soil. Three constituents are reported in excess of residential screening levels, but are significantly below industrial levels. Figure 2 diagrammatically depicts the data in terms of sample location and depth. With one exception, detections of individual constituents at specific locations are separated either by depth or locations reported as non-detect for the same constituent. Methylene chloride was consistently detected at multiple depths from borings along the drainage ditch adjacent to Marsh Avenue north of the facility. The highest reported concentration is less than 15% of the industrial screening level and exceeds the residential level by 28 mg/Kg.

SEMI VOLATILE ORGANICS IN SOIL

Sample results are summarized in Table 2-2 and are diagrammatically depicted in Figure 3. All results were non-detect for each constituent with the exception of bis(2-ethylhexyl)phthalate reported at a concentration of 1.29 mg/Kg at location B-18 and depth of 7.5 feet. This data is included, however, with the rejected data obtained from borings B-17, B-18, and B-19 in the 1998 sampling round. Plans to re-sample for this data are included in the section dealing with corrective measures.

METALS IN SOIL

Sample results for metals are presented in Table 2-3. With the exception of Tin and Antimony, all metals included in the list of constituents of concern were detected in most of the soil samples. A figure depicting the detections of metals in soil was therefore not produced. Only Arsenic was reported in excess of residential and industrial screening levels. As a carcinogen, these levels are actually set below the detection level established for the RFI, therefore, if Arsenic is detected in a sample it automatically exceeds both screening levels. The range of concentrations reported in the tables varied from 5.1 mg/Kg to 18.0 mg/Kg with a mean average of 7.29 mg/Kg. This is consistent with a published range of 3 to 13 mg/Kg and mean average of 8.3 mg/Kg as reported for naturally occurring arsenic in a loess soil in Missouri. An excerpt from this Geological Survey Professional Paper 574-F, Background Geochemistry of Some Rocks, Soils, Plants, and Vegetables in the Conterminous United States, is enclosed with this submission for reference.

HERBICIDES IN SOIL

Because all analytical results for herbicides were reported as non-detect, no data was tabulated. Figure 4 is prepared, however, in order to graphically depict the locations of rejected data which was collected from borings installed in 1995.

PESTICIDES IN SOIL

Results of analysis for pesticides in soil samples are presented in Table 2-4. Two constituents were detected in samples collected from several of the borings. All reported concentrations were significantly below residential screening levels. Data validity is called into question for all samples analyzed for pesticides due to control sample recoveries outside of limits. Plans to address this gap in the data set are addressed in the section dealing with corrective measures. The results are graphically depicted in Figure 5.

PCB's IN SOIL

Results of analysis for polychlorinated-biphenols in soil are also included in Table 2-4. PCB-1260 is the only constituent detected in soil samples collected from the site. Of these, one sample exceeded the residential screening level by 0.125 mg/Kg. Analytical results are graphically depicted in Figure 6.

WET CHEMISTRY COMPOUNDS IN SOILS

Results of analysis for Hexvalent Chromium, Total Cyanide, and Total Sulfide are presented in Table 2-5. Total Sulfides were detected from many of the borings at concentrations ranging from 0.548 mg/Kg to 137.0 mg/Kg. There are no residential nor industrial screening levels associated with this constituent. All results for Hexvalent Chromium and Total Cyanide were non-detect. No figure was prepared for this constituent. The analysis for Hexvalent Chromium was inadvertently omitted from samples collected from borings B-17, B-18, and B-19. Plans to correct this deficiency in the data set are included in the section dealing with corrective measures.

DIOXIN AND FURAN CONCENTRATIONS IN SOILS

Only samples collected from beneath the on-site building were required to be analyzed for the presence of dioxins and furans. The results of this analysis are summarized and presented in Table 2-6. Evaluation of this data requires that the value reported for each individual isomer be multiplied by it's respective Toxicity Equivalence Factor (TEF). The sum of resulting products are then converted to units of milligrams per kilogram and compared to the established screening levels for the isomer 2,3,7,8-TCDD. All concentration levels were below the residential screening level. No figure was prepared for the results of dioxin analysis.

GROUNDWATER SAMPLING RESULTS

Results of the analysis of samples collected from groundwater monitoring wells have been summarized and are presented in Table 1-1 for volatile organic constituents, Table 1-3 for metals, and Table 1-5 for cyanide, sulfide, and hexvalent chromium constituents which were detected in samples. Results for all semi-volatile, herbicide, pesticide, and PCB analysis were non-detect. Data validation review of laboratory analysis for water samples was found acceptable for all fractions analyzed.

METALS IN GROUNDWATER

The analytical results for metals detected in groundwater are summarized in Table 1-3. There were detections of all metals included in the list of constituents of concern with the exceptions of Antimony, Arsenic, Lead, Mercury, and Silver. Exceedence of concentration levels of concern were reported for Cadmium, Iron, Manganese, and Thallium. Hexvalent chromium results were tabulated in Table 1-5 with other wet chemistry compounds. There were no detections of either cyanides or sulfides with this analysis.

VOLATILE ORGANICS IN GROUNDWATER

Table 1-1 has been prepared to present the results of the analysis of volatile organic compounds in groundwater. Five of the constituents of concern were detected in samples collected during sampling activities conducted in March of 1998. Two constituents were reported which exceeded established maximum concentration levels. Trichlorethene was reported at a concentration of 91.9 ug/L at well GW-6B. Vinyl Chloride was reported at a concentration of 3.48 ug/L at well GW-6B, 1.84 ug/L at GW-9B, and 2.60 ug/L at GW-10B.

Isoconcentration maps have been prepared for each of the five constituents which were detected during this sampling event as well as a map for the total of all detected volatiles. It should be noted that these maps are prepared without data from wells GW-2, GW-3, GW-4, and EPA-R-1 due to the presence of light non-aqueous phase liquid (LNAPL) at these locations. (Detections of these and other constituents are likely to be present in the groundwater at these points.) Contour lines have also been forced to honor the non-detect locations as the nearest zero concentration. The zero line is therefore extended outward to approach these data points and the resulting isoconcentrations may depict the dissolved phase groundwater plume larger than it actually is.

Figure 7 is a map which depicts the concentration of total volatiles during this first quarter sampling activity. Figures 8 through 12 depict the theoretical concentrations of each of the following constituents respectively; benzene, 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride. For the reasons stated above, the graphical representation of concentrations for each of these constituents is suspect at best. The maps do, however, provide an indication in general of the presence of the constituents. Figure 7 may be reasonably accurate in terms of the down gradient extent of contaminant migration while slightly exaggerated in the north-south, side-gradient, direction. It is also important to note that shallow wells are reported non-detect for all volatile constituents in the extreme down gradient direction. Detections of volatile constituents are restricted to wells screened directly above the bedrock contact.

SITE HYDROGEOLOGY

Figures 13 and 14 are groundwater flow maps which have been prepared to illustrate the flow direction and gradient of groundwater at the site. Figure 13 is prepared utilizing static water levels from shallow water table wells 6A, 8A, 9A and 10A in conjunction with other wells at the site which are screened to intercept the water table. Well GW-1 is screened in bedrock adjacent to the sub-crop contact with alluvial deposits and appears to be in good hydraulic connection to the water table aquifer. The gradient appears to reflect a slope influenced by the contact with bedrock near the eastern boundary. The gradient then flattens as flow moves to the west and may be more heavily influenced by topography.

Wells screened at the bedrock contact in the extreme down gradient direction are reported with static water levels approximately 14 feet lower in elevation. These well pairs may indicate the presence of multiple hydraulic zones in this area of the aquifer. Figure 14 has been prepared utilizing static water levels from bedrock contact wells 6B, 8B, 9B and 10B in conjunction with other wells at the site. Flow direction is the same as reported previously, but the gradient remains relatively constant throughout the aquifer. A review of the borelogs from wells GW-9B and 10B indicate the presence of a fine sand layer between four and five feet thick at a depth of approximately 40 to 50 feet. Drilling was reported slower in this interval and increased pressure was necessary. More information will be required to arrive at a conclusion on this issue.

CORRECTIVE MEASURES ASSOCIATED WITH DATA VALIDATION ISSUES

HERBICIDES AND PESTICIDES IN SOILS

Because levels of herbicides have been non-detect at all sample locations and pesticides are either reported as non-detect or at very low concentrations, we believe that these fractions may not belong on the list of constituents of concern. We are proposing that corrective action be temporarily postponed on these fractions pending further analysis. Soil excavation from the area of the tank farm will soon be initiated as part of closure activities and the interim measure of the Administrative Order on Consent (AOC). Confirmation samples collected from the sidewalls and base of this excavation will be analyzed for these fractions in accordance with data validation procedures approved for use in the RFI. Laboratory analysis procedures have been corrected to address the validation problems which were previously identified. If results for herbicides and pesticides confirm that concentrations are below levels of concern in samples collected from the source area, we may suggest that these fractions be removed from the list of constituents being analyzed. Corrective measures to validate data from previous borings would then not be necessary. If levels indicate otherwise, a new plan will be offered to fill the data gaps which presently exist for these fractions.

SEMI-VOLATILE CONSTITUENTS IN SOILS

Causes for the deficiencies in the analysis of semi-volatile constituents have been identified in the laboratory procedures conducted for the analysis of samples collected from beneath the on-site building. These procedures have now been corrected, and we propose to re-sample this area adjacent to borings B-17, B-18, and B-19. In addition to analyzing these samples for the list of semi-volatile constituents, we also propose to analyze for the constituents included in the list for pesticides and hexvalent chromium. Results of all other fractions analyzed from these samples were previously considered valid. The additional pesticide data thus obtained could be used in conjunction with results obtained from the excavation confirmation samples for the evaluation discussed in the preceding section.

ADDITIONAL GROUNDWATER INFORMATION

The lack of groundwater analytical data from wells caused by the presence of LNAPL has compromised the determination of the nature and extent of groundwater contamination at the site. During fourth quarter sampling activities, an attempt was made to collect water samples from these wells utilizing a low flow, micro-purge, sampling technique. A bladder pump was immersed below the LNAPL layer into the screened interval of wells GW-2, GW-3, GW-4, and EPA-R-1. Water was pumped at a flow rate intended not to induce a significant draw to the static level in order to avoid the introduction of additional LNAPL beyond the quantity which was introduced during the immersion process. Pumping was continued until the LNAPL was no longer visibly evident in the effluent, and indicator parameters (e.g. temperature, pH, and conductivity) had stabilized.

Samples were collected and analyzed for volatile, semi-volatile, metal, pesticide, and PCB constituents. Although the data was not reviewed by third party validation procedures, it was analyzed using the same laboratory methodology which was supported during the first quarter review. We believe this data to be comparable for the purpose of this discussion of additional work.

Figures 15 and 16 are groundwater flow maps prepared from static water elevations taken during this fourth quarter sampling event. Figure 15 is prepared based on static level information from water table monitoring locations, and Figure 16 is prepared based on wells screened directly above the bedrock contact. These figures are consistent with discussion of flow direction and gradient presented in the section which deals with site hydrogeology. The evaluation of previous quarterly sampling results also support the consistency of this flow pattern with only slight fluctuations in seasonal elevations.

Figures 17 through 28 are Isoconcentration maps which have been prepared and are presented to depict what is perceived to be a more realistic interpretation of the groundwater contamination at the site. The isoconcentrations are still qualified as presented earlier by being exaggerated outward toward actual non-detect points. However, data is now added from wells GW-2, GW-3, GW-4, and EPA-R-1 which addresses the other qualifier previously discussed.

Figure 17 is an isoconcentration map of total volatiles reported from all wells at the site. Figures 18 through 27 are Isoconcentration maps of each of the individual constituents which comprise this total. These constituents listed respective to figure number are benzene, 1,1 dichloroethane, ehtylbenzene, chloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethene, trichloroethene, toluene, vinyl chloride, and xylene. Figure 28 has also been prepared to depict the isoconcentration of BTEX constituents, a tool commonly used for evaluating petroleum releases.

Figures 29 through 32 have been prepared to depict the isoconcentrations of semi-volatile constituents which were also detected as part of this analysis. Figure 29 is an isoconcentration map of the total of all the semi-volatile constituents, and figures 30 through 32 are isoconcentrations of each of the individual constituents which together comprise this total. In general these isoconcentrations reflect the same basic configuration as the BTEX indicator constituents.

We propose another groundwater sampling round be conducted which would incorporate these LNAPL wells. The sampling and analysis would be conducted in accordance with the approved procedures included in the RFI work plan, with the addition of micro-purge techniques for wells where LNAPL is present. This data would also be validated through the approved process. Collection of samples from the product wells would deviate slightly from the process described previously. In that process a single bladder pump was utilized to sample each well with a decontamination procedure employed between wells. We propose to install dedicated pumps in each of these wells in order to eliminate the possibility of cross-contamination. This will also provide us with the equipment to add these wells to the routine sampling conducted quarterly. We recognize this will require a modification to the current sampling and analysis plan, and invite your comments to assist us in the preparation of this revision.

Although the inclusion of data obtained from these wells will dramatically improve our ability to evaluate the contaminant plume, there still exists a large area between Marsh Avenue and Interstate I-435 that constitutes a gap in the data. This data gap has been amplified by questions surrounding the issue of multiple hydraulic zones. We believe additional wells are necessary in this area, but that insufficient data exists to propose the number and locations. We propose, therefore, to conduct a hydraulic push probe investigation to gather screening data for the purpose of designing additional monitoring wells.

Figure 33 has been prepared to identify the locations being proposed for this phase of the investigation. Fifteen locations are proposed which are positioned on a 50 foot staggered grid, spanning what is believed to be the lateral extent of contamination in the north-south direction, and stepping down gradient in a triangular configuration. Each probe would be pushed to intercept the water table and a sample of the groundwater would be collected at that horizon. The probe would then be pushed to refusal. A sample of the groundwater would be collected from this zone at total depth, and an attempt made to determine if refusal is based on contact with bedrock or a potential confining lithology. The groundwater samples will be analyzed for the BTEX constituents as well as chloroethane, 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride. Based on the evaluation of this screening data, a proposal for locations and depths of additional monitoring points will be designed and submitted for approval. The location of the replacement soil borings proposed previously are also depicted on Figure 33.

SCHEDULE

The replacement soil borings beneath the building can be installed within sixty days of the receipt of approval. Soil excavation will begin in accordance with the schedule included in the closure plan modification on receipt of approval. The data obtained from analysis of replacement borings will be beneficial in conjunction with the analysis of sidewall and floor confirmation samples obtained from this excavation activity.

The schedule for installation of push probes will have to be determined by coordinating with the vendor providing that service, and after negotiating a new property access agreement with the owner. We believe this could be accomplished within sixty days of the addendum work plan approval. A schedule for the installation of additional monitoring wells will have to be submitted with a design plan which is based on data obtained from the push probe screening. We plan to coordinate this activity in order to have wells installed prior to the third quarter sampling event.

The addition of the LNAPL wells to the routine groundwater sampling and analysis plan should be implemented in time to be incorporated with the second quarter sampling. A revision to the sampling analysis plan for this facility is being prepared for MDNR consideration. Groundwater sampling for inclusion in the RFI should be coordinated with the first quarterly sampling event which includes new monitoring locations developed by the push probe investigation. A work plan schedule is presented on the following page which graphically illustrates this sequence of events. A four week period of time has been allotted for agency review and approval.

WORK PLAN ADDENDUM SCHEDULE

TASKS	24-Jan-00	31-Jan-00	07-Feb-00	14-Feb-00	21-Feb-00	28-Feb-00	06-Mar-00	13-Mar-00	20-Mar-00	27-Mar-00	03-Apr-00	10-Apr-00	17-Apr-00	24-Apr-00	01-May-00	08-May-00	15-May-00	22-May-00	29-May-00	05-Jun-00	12-Jun-00	19-Jun-00	26-Jun-00	03-Jul-00	10-Jul-00	17-Jul-00	24-Jul-00
REVISED WORK PLAN SUBMITTED 1/26/00	WORK PLAN APPROVAL																										
REPLACEMENT BORINGS							BORING INSTALLATION				SAMPLE ANALYSIS						DATA VALIDATION										
PUSH PROBE INVESTIGATION							ACCESS NEGOTIATION				FIELD INVESTIGATION				DATA ANALYSIS / MONITOR WELL DESIGN PLAN				MONITOR WELL DESIGN PLAN APPROVAL								
WELL INSTALLATION																							MONITOR WELL INSTALLATION AND SAMPLING				
LNAPL SAMPLING							EQUIPMENT INSTALLATION AND SAMPLING																				

TABLES

TABLE 1-1

VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Concentrations reported in ug/L		CONCENTRATION LEVELS OF CONCERN (FEDERAL / STATE)				
		5.0 / 5.0			5.0 / 5.0	2.0 / 2.0
WELL ID	SAMPLE DATE	BENZENE	1,1-DICHLOROETHANE	CIS-1,2-DICHLOROETHENE	TRICHLOROETHEN	VINYL CHLORIDE
GW-1	25-Mar-98	4.74				
GW-5	25-Mar-98					
GW-6A	25-Mar-98					
GW-6B	25-Mar-98		13.90	26.70	91.90	3.48
GW-7	25-Mar-98					
GW-8A	25-Mar-98					
GW-8B	25-Mar-98					
GW-9A	25-Mar-98					
GW-9B	25-Mar-98			12.00		1.84
GW10A	25-Mar-98					
GW-10B	25-Mar-98			34.60		2.60
EPA-R-3	25-Mar-98					

SHADING DENOTES CONCENTRATIONS IN EXCESS OF REGULATED LEVELS

TABLE 1-3

METALS IN GROUNDWATER

Concentrations reported in ug/L		CONCENTRATION LEVELS OF CONCERN (FEDERAL / STATE)																					
			6.00	50.00	2000.00	4.00	5.00		100.00	1000.00	1300.00	300.00	15.00		50.00	2.00	100.00		50.00	2.00			5000.00
WELL ID	SAMPLE DATE	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SILVER	THALLIUM	TIN	VANADIUM	ZINC
GW-1	25-Mar-98	452.00	ND(30.0)	ND(50.0)	95.10	ND(0.5)	ND(2.5)	144000.00	ND(4.0)	ND(0.5)	6.10	417.00	ND(50.0)	42700.00	65.60	ND(0.3)	13.60	3350.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	434.00
GW-5	25-Mar-98	3090.00	ND(30.0)	ND(50.0)	160.00	ND(0.5)	ND(2.5)	148000.00	ND(4.0)	3.90	13.30	3400.00	ND(50.0)	9830.00	175.00	ND(0.3)	15.50	2110.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	388.00
GW-6A	25-Mar-98	8310.00	ND(30.0)	ND(50.0)	199.00	ND(0.5)	ND(2.5)	149000.00	ND(4.0)	5.20	19.30	7740.00	ND(50.0)	12000.00	374.00	ND(0.3)	21.60	2990.00	ND(25.0)	ND(2.0)	ND(25.0)	9.60	586.00
GW-6B	25-Mar-98	625.00	ND(30.0)	ND(50.0)	452.00	ND(0.5)	ND(2.5)	185000.00	ND(4.0)	ND(0.5)	6.00	4320.00	ND(50.0)	13800.00	562.00	ND(0.3)	4.04	2690.00	ND(25.0)	ND(2.0)	ND(25.0)	16.80	461.00
GW-7	25-Mar-98	1630.00	ND(30.0)	ND(50.0)	138.00	ND(0.5)	ND(2.5)	147000.00	ND(4.0)	ND(0.5)	13.80	924.00	ND(50.0)	11400.00	941.00	ND(0.3)	15.30	1990.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	191.00
GW-8A	25-Mar-98	12400.00	ND(30.0)	ND(50.0)	236.00	2.60	15.10	131000.00	ND(4.0)	23.90	65.90	13600.00	ND(50.0)	14700.00	1520.00	ND(0.3)	62.80	3050.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	512.00
GW-8B	25-Mar-98	729.00	ND(30.0)	ND(50.0)	233.00	2.00	ND(2.5)	111000.00	ND(4.0)	1.90	4.60	2440.00	ND(50.0)	12000.00	4820.00	ND(0.3)	16.90	2080.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	213.00
GW-9A	25-Mar-98	9080.00	ND(30.0)	ND(50.0)	288.00	1.60	ND(2.5)	145000.00	13.10	11.70	29.40	4540.00	ND(50.0)	13000.00	614.00	ND(0.3)	83.60	3230.00	ND(25.0)	ND(2.0)	ND(25.0)	12.90	513.00
GW-9B	25-Mar-98	519.00	ND(30.0)	ND(50.0)	359.00	ND(0.5)	ND(2.5)	106000.00	ND(4.0)	ND(0.5)	ND(4.5)	593.00	ND(50.0)	19500.00	337.00	ND(0.3)	ND(7.5)	4980.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	150.00
GW10A	25-Mar-98	573.00	ND(30.0)	ND(50.0)	71.90	ND(0.5)	ND(2.5)	138000.00	ND(4.0)	ND(0.5)	ND(4.5)	283.00	ND(50.0)	10500.00	ND(7.5)	ND(0.3)	ND(7.5)	2810.00	ND(25.0)	ND(2.0)	46.20	ND(7.0)	298.00
GW-10B	25-Mar-98	706.00	ND(30.0)	ND(50.0)	431.00	ND(0.5)	6.20	127000.00	ND(4.0)	ND(0.5)	10.80	12100.00	ND(50.0)	22200.00	544.00	ND(0.3)	17.50	4640.00	ND(25.0)	2.00	39.90	ND(7.0)	562.00
EPA-R-3	25-Mar-98	511.00	ND(30.0)	ND(50.0)	226.00	ND(0.5)	ND(2.5)	179000.00	ND(4.0)	1.40	10.50	830.00	ND(50.0)	16300.00	303.00	ND(0.3)	8.10	2310.00	ND(25.0)	ND(2.0)	ND(25.0)	ND(7.0)	386.00

SHADING DENOTES CONCENTRATIONS IN EXCESS OF REGULATED LEVELS

TABLE 1-5

WET CHEMISTRY COMPOUNDS IN GROUNDWATER

Concentrations reported in mg/Kg		CONCENTRATION LEVELS OF CONCERN (FEDERAL / STATE)		
		200.00 / NA		
WELL ID	SAMPLE DATE	TOTAL CYANIDE	TOTAL SULFIDE	HEXVALENT CHROMIUM
GW-1	25-Mar-98			
GW-5	25-Mar-98			
GW-6A	25-Mar-98			
GW-6B	25-Mar-98			26.90
GW-7	25-Mar-98			
GW-8A	25-Mar-98			
GW-8B	25-Mar-98			
GW-9A	25-Mar-98			
GW-9B	25-Mar-98			23.70
GW10A	25-Mar-98			
GW-10B	25-Mar-98			
EPA-R-3	25-Mar-98			

SHADING DENOTES CONCENTRATIONS IN EXCESS OF REGULATED LEVELS

TABLE 2-1

VOLATILE ORGANIC COMPOUNDS IN SOILS

Concentrations reported in mg/Kg			CONCENTRATION LEVELS OF CONCERN(INDUSTRTRIAL / RESIDENTIAL)						
			200000 / 7800	440 / 49	760 / 85	29 / 3.2	4,100,000 / 160,000	1,000,000 / 160,000	410000 / 16000
BORING	DEPTH	SAMPLE DATE	Acetone	Chloromethane	Methylene Chloride	1,1,2,2-Tetrachloroethane	o-Xylene	Xylenes	Toluene
97B1									
	-4"	13-Oct-97				15.30			
97B6									
	10'	20-Oct-97		66.90					
97B8									
	25'	22-Oct-97			78.40				
	29'	22-Oct-97				17.90			
97B13									
	6"	11-Nov-97							68.50
	DUP	11-Nov-97							96.00
97B14									
	6"	24-Nov-97			60.50				
	5'	24-Nov-97			76.30				
	10'	24-Nov-97			83.50				
	11'	24-Nov-97			74.10				
	15'	24-Nov-97			109.00				
	20'	24-Nov-97			113.00				
	24'	24-Nov-97			77.40				
97B15									
	6"	25-Nov-97			73.40				
	5'	25-Nov-97			95.50				
	10'	25-Nov-97			111.00				
	DUP	25-Nov-97			87.50				
97B16									
	6"	26-Nov-97			74.40				
	5'	26-Nov-97	1070.00		78.10				
	10'	26-Nov-97			63.60				
	22'	26-Nov-97	876.00						
98B18									
	7.5'	11-Mar-98					0.2400	0.1260	
98B19									
	15.0'	11-Mar-98				0.0191			

0.00 - UNDERLINED VALUES ARE ESTIMATED

SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL SCREENING LEVELS

TABLE 2-2

SEMI-VOLATILE ORGANIC COMPOUNDS IN SOILS

Concentrations reported in mg/Kg			CONCENTRATION LEVELS OF CONCERN(INDUSTRTRIAL / RESIDENTIAL)
			410 / 46
BORING	DEPTH	SAMPLE DATE	Bis (2-ethylhexyl)phthalate
98B18			
	7.5'	11-Mar-98	~~1.29~~

~~1.29~~ STRIKETHROUGH INDICATES REJECTED DATA BASED ON SURROGATE RECOVERIES < 10%

SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL SCREENING LEVELS

TABLE 2-3

METAL SOILS

SAMPLE ID	DATE SAMPLED	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SILVER	THALLIUM	TIN	VANADIUM	ZINC
(RESULTS REPORTED in mg/Kg)	CONCENTRATION LEVELS OF CONCERN mg/Kg (INDUSTRIAL / RESIDENTIAL)	2000000 / 78000	820 / 31	3.8 / .43	140000 / 5500	4100 / 160	2000/ 78 1000 / 39		2000000 / 78000	120000 / 4700	82000 / 3100	610000 / 23000			290000 / 11000 41000 / 1600		41000 / 1600		10000 / 390	140 / 5.5	1200000 / 47000	14000 / 550	610000 / 23000
97B1-4"	13-Oct-97	2,390	ND(3.0)	ND(5.0)	74.6	0.1990	0.929	242,000	5.82	1.50	6.67	4,420	6.37	3,400	229	ND(.075)	7.10	679	2.900	ND(.185)	ND(2.5)	10.30	17.70
97B2-4"	13-Oct-97	1,380	ND(3.0)	ND(5.0)	94.5	0.4430	1.660	216,000	10.30	3.24	9.53	8,620	14.70	2,600	415	ND(.075)	12.60	1,300	2.450	ND(.185)	ND(2.5)	16.90	36.70
97B2-2.5'	13-Oct-97	12,800	ND(3.0)	6.98	175.0	0.9030	2.993	3,560	13.40	7.70	13.50	18,600	16.30	2,500	799	0.0900	20.20	1,050	0.326	0.215	ND(2.5)	17.10	52.00
97B2-7.5'	13-Oct-97	7,160	ND(3.0)	ND(5.0)	98.1	0.6150	2.190	215,000	12.80	5.63	12.20	14,100	12.00	2,000	351	ND(.075)	15.10	1,700	0.310	ND(.185)	ND(2.5)	18.10	56.60
97B2-10.0'	13-Oct-97	15,000	ND(3.0)	15.40	107.0	1.1200	4.590	46,700	23.40	12.10	20.30	20,400	20.40	4,260	439	ND(.075)	46.10	2,810	0.287	0.395	ND(2.5)	12.40	195.00
97B3-3"	14-Oct-97	2,360	ND(3.0)	ND(5.0)	45.5	0.2230	0.775	270,000	5.57	1.82	6.92	5,100	20.10	4,130	335	~~ND(.075)~~	6.96	577	ND(2.5)	ND(.185)	ND(2.5)	10.40	29.70
97B3-2.5'	14-Oct-97	11,000	ND(3.0)	6.04	122.0	0.8780	2.150	2,710	12.70	7.29	11.90	14,200	13.90	1,720	553	~~ND(.075)~~	16.50	17	ND(2.5)	ND(.185)	ND(2.5)	22.60	40.90
97B3-5.0'	14-Oct-97	11,000	ND(3.0)	8.07	118.0	0.8380	1.780	2,580	10.50	7.27	11.10	14,100	14.60	1,770	597	~~0.1070~~	16.00	1,100	ND(2.5)	ND(.185)	ND(2.5)	18.30	39.60
97B3-7.0'	14-Oct-97	9,810	ND(3.0)	ND(5.0)	139.0	0.6950	1.850	2,230	10.70	6.83	12.40	13,800	16.00	1,810	634	~~0.1020~~	14.80	1,240	ND(2.5)	ND(.185)	ND(2.5)	16.80	41.30
97B3-10.0'	14-Oct-97	10,800	ND(3.0)	7.91	174.0	0.7450	2.050	3,370	11.80	7.36	12.40	17,100	14.40	2,310	605	~~0.1110~~	14.50	1,250	ND(2.5)	ND(.185)	ND(2.5)	20.20	47.40
97B3-12.0'	14-Oct-97	8,510	ND(3.0)	7.13	118.0	0.6930	1.960	3,060	9.91	6.71	11.80	14,600	13.70	2,170	499	~~ND(.075)~~	16.70	988	ND(2.5)	ND(.185)	ND(2.5)	17.10	45.30
97B3-15.0'	14-Oct-97	8,330	ND(3.0)	7.43	144.0	0.7092	1.980	3,520	9.78	7.28	13.20	15,600	14.50	2,160	507	~~0.0760~~	17.80	1,010	ND(2.5)	0.211	ND(2.5)	18.90	51.10
97B3-17.5'	14-Oct-97	8,350	ND(3.0)	6.46	178.0	0.6900	2.000	3,470	10.30	6.53	13.80	13,800	14.10	2,180	743	~~ND(.075)~~	18.00	1,080	ND(2.5)	0.216	ND(2.5)	17.40	51.10
97B3-20.0'	14-Oct-97	7,310	ND(3.0)	6.34	197.0	0.6500	2.150	3,460	9.69	7.74	13.40	13,000	14.00	2,020	1,150	~~ND(.075)~~	21.80	972	ND(2.5)	0.212	ND(2.5)	16.30	50.50
DUPLICATE	14-Oct-97	9,210	ND(3.0)	5.10	150.0	0.6990	1.830	2,120	10.80	7.49	12.00	13,100	13.70	1,930	641	0.0870	14.10	1,280	ND(2.5)	ND(.185)	ND(2.5)	20.10	43.70
97B4-3"	20-Oct-97	1,630	ND(3.0)	ND(5.0)	41.7	0.1950	1.090	236,100	6.39	1.71	10.40	5,120	42.60	3,220	251	ND(.075)	6.62	541	ND(2.5)	ND(.185)	ND(2.5)	4.28	85.40
97B5-6"	20-Oct-97	4,660	ND(3.0)	ND(5.0)	146.0	0.3950	1.320	4,280	8.88	4.76	11.90	7,820	43.40	2,740	515	ND(.075)	13.60	1,270	ND(2.5)	ND(.185)	ND(2.5)	9.64	54.60
97B6-4"	20-Oct-97	3,530	ND(3.0)	ND(5.0)	49.8	0.2850	0.801	280,000	7.26	2.44	7.19	5,610	12.20	2,650	257	ND(.075)	8.46	944	ND(2.5)	ND(.185)	ND(2.5)	8.32	27.80
97B6-10.0'	20-Oct-97	11,800	ND(3.0)	16.20	91.4	0.9880	5.230	9,943	68.30	8.98	58.10	16,800	68.40	4,920	208	0.1780	54.80	4,310	ND(2.5)	0.982	ND(2.5)	389.00	5.34
97B7-4"	21-Oct-97	4,170	ND(3.0)	ND(5.0)	60.5	0.3150	1.370	171,000	7.29	2.85	7.16	6,390	26.30	2,570	363	ND(.075)	9.58	1,030	ND(2.5)	ND(.185)	ND(2.5)	9.54	31.80
97B7-10.0'	21-Oct-97	9,010	ND(3.0)	6.51	164.0	0.6910	2.300	4,550	10.70	6.90	12.10	13,900	14.70	2,630	681	ND(.075)	15.50	1,240	ND(2.5)	ND(.185)	ND(2.5)	18.30	47.60

~~0.00~~ - STRIKETHROUGH INDICATES REJECTED DATA BASED ON ANALYSIS OUTSIDE OF HOLD TIME

0.00 - UNDERLINED VALUES ARE ESTIMATED

- SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL AND INDUSTRIAL SCREENING LEVELS

TABLE 2-3
METAL[illegible] SOILS

(RESULTS REPORTED in mg/Kg)		CONCENTRATION LEVELS OF CONCERN mg/Kg (INDUSTRIAL / RESIDENTIAL)																					
		2000000 / 78000	820 / 31	3.8 / .43	140000 / 5500	4100 / 160	2000/ 78 1000 / 39		2000000 / 78000	120000 / 4700	82000 / 3100	610000 / 23000			290000 / 11000 41000 / 1600		41000 / 1600		10000 / 390	140 / 5.5	1200000 / 47000	14000 / 550	610000 / 23000
SAMPLE ID	DATE SAMPLED	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SILVER	THALLIUM	TIN	VANADIUM	ZINC
97B8-6"	21-Oct-97	3,000	ND(3.0)	ND(5.0)	110.0	0.2500	1.240	284,000	7.00	2.00	8.94	5,270	15.40	3,560	321	ND(.075)	8.09	895	ND(2.5)	ND(.185)	ND(2.5)	7.19	39.70
97B8-5'	21-Oct-97	11,700	ND(3.0)	ND(5.0)	132.0	0.8870	2.770	4,030	16.80	8.48	14.30	16,600	18.70	2,310	699	ND(.075)	20.40	2,260	ND(2.5)	0.219	ND(2.5)	20.10	47.60
97B8-10'	21-Oct-97	10,600	ND(3.0)	ND(5.0)	166.0	0.8020	2.640	3,380	13.50	8.31	13.20	15,000	16.70	2,000	707	ND(.075)	20.50	1,780	ND(2.5)	ND(.185)	ND(2.5)	19.40	49.10
97B8-15'	21-Oct-97	12,200	ND(3.0)	5.56	141.0	0.9130	2.780	3,380	15.50	8.33	15.00	16,500	18.10	2,510	803	ND(.075)	21.20	1,760	ND(2.5)	0.234	ND(2.5)	22.30	61.40
97B8-20'	21-Oct-97	13,700	ND(3.0)	10.10	251.0	1.0500	3.750	4,500	21.20	11.30	21.10	23,700	18.20	3,250	599	ND(.075)	28.30	1,900	ND(2.5)	ND(.185)	ND(2.5)	30.50	67.80
97B8-25'	22-Oct-97	8,910	ND(3.0)	ND(5.0)	75.3	0.6230	1.260	3,930	11.80	5.42	11.10	9,830	12.30	2,470	66	ND(.075)	10.20	1,070	ND(2.5)	ND(.185)	ND(2.5)	13.70	52.90
97B8-29'	22-Oct-97	7,550	ND(3.0)	ND(5.0)	115.0	0.6210	1.800	4,020	10.90	5.51	10.80	11,500	13.00	2,190	219	ND(.075)	14.70	956	ND(2.5)	ND(.185)	ND(2.5)	16.80	64.70
97B9-2"	3-Nov-97	3,860	ND(3.0)	ND(5.0)	63.4	ND	1.530	231,000	6.85	3.41	7.89	7,120	13.10	4,680	408	ND(.075)	9.20	1,090	ND(2.5)	ND(.185)	ND(2.5)	7.48	33.50
97B9-5'	3-Nov-97	14,700	ND(3.0)	5.72	186.0	0.9630	2.920	2,780	18.10	8.38	13.40	15,600	18.40	2,470	657	ND(.075)	21.40	3,260	ND(2.5)	ND(.185)	ND(2.5)	23.70	46.10
97B9-10.0'	3-Nov-97	11,100	ND(3.0)	5.25	143.0	0.8430	2.550	3,730	13.20	8.33	12.50	14,900	17.00	2,230	715	ND(.075)	20.70	1,410	ND(2.5)	ND(.185)	ND(2.5)	19.00	54.90
97B9-15.0'	3-Nov-97	10,900	ND(3.0)	6.48	174.0	0.8320	2.840	3,670	13.80	8.56	13.40	16,600	14.80	2,370	578	ND(.075)	20.20	1,390	ND(2.5)	ND(.185)	ND(2.5)	19.30	51.90
97B9-20.0'	3-Nov-97	9,050	ND(3.0)	5.95	127.0	0.7470	2.650	3,340	11.30	8.19	11.80	14,100	15.80	2,060	480	ND(.075)	16.50	1,130	ND(2.5)	ND(.185)	ND(2.5)	18.00	47.80
97B9-25.0'	3-Nov-97	8,628	ND(3.0)	5.93	74.5	0.6960	2.250	3,920	12.70	7.47	11.80	12,100	16.50	2,230	96	ND(.075)	13.10	1,210	ND(2.5)	ND(.185)	ND(2.5)	16.60	50.50
97B10-6"	4-Nov-97	4,780	ND(3.0)	ND(5.0)	79.2	0.3830	1.460	225,000	8.55	3.19	10.10	7,920	24.90	2,610	349	ND(.075)	10.70	1,240	ND(2.5)	ND(.185)	ND(2.5)	13.20	53.90
97B10-5.0'	4-Nov-97	12,900	ND(3.0)	6.33	150.0	0.9520	3.040	4,140	15.70	8.85	14.20	17,900	19.10	2,490	784	ND(.075)	23.20	2,180	ND(2.5)	ND(.185)	ND(2.5)	19.90	51.00
97B10-10.0'	4-Nov-97	11,700	ND(3.0)	7.62	608.0	0.4250	2.920	7,240	15.50	10.20	15.40	17,500	20.70	2,360	706	ND(.075)	23.30	1,540	ND(2.5)	ND(.185)	ND(2.5)	20.10	66.60
97B10-15.0'	4-Nov-97	11,500	ND(3.0)	6.58	150.0	0.8480	2.930	3,640	16.30	9.29	14.50	17,200	15.90	2,480	708	ND(.075)	23.10	1,590	ND(2.5)	ND(.185)	ND(2.5)	19.50	47.70
97B10-20.0'	4-Nov-97	8,270	ND(3.0)	5.99	157.0	0.6740	2.340	3,030	10.60	6.90	10.90	13,800	14.60	2,140	599	ND(.075)	14.80	1,210	ND(2.5)	ND(.185)	ND(2.5)	15.80	48.40
97B10-25.0'	4-Nov-97	8,400	ND(3.0)	8.06	164.0	0.7040	2.450	3,320	10.00	7.07	12.40	14,200	15.40	2,420	628	ND(.075)	18.00	1,120	ND(2.5)	ND(.185)	ND(2.5)	17.80	56.20
97B11-6"	5-Nov-97	1,650	ND(3.0)	ND(5.0)	47.4	0.1160	1.060	259,000	5.51	2.51	11.60	4,060	19.40	3,830	232	ND(.075)	8.27	501	ND(2.5)	ND(.185)	ND(2.5)	8.75	55.20
97B11-10.0'	5-Nov-97	12,200	ND(3.0)	6.40	122.0	0.9000	2.530	2,960	14.20	7.52	11.80	16,300	16.50	2,190	621	ND(.075)	19.20	1,680	ND(2.5)	0.200	ND(2.5)	19.30	43.70
97B11-15.0'	6-Nov-97	10,300	ND(3.0)	ND(5.0)	115.0	0.7980	2.480	2,880	12.40	7.08	12.20	13,100	15.40	2,050	647	ND(.075)	19.70	1,320	ND(2.5)	ND(.185)	ND(2.5)	18.60	49.60
97B11-20.0'	6-Nov-97	8,320	ND(3.0)	5.58	161.0	0.7020	2.250	3,080	10.40	7.04	11.10	12,900	13.10	1,960	563	ND(.075)	16.80	990	ND(2.5)	ND(.185)	ND(2.5)	14.90	43.10
97B11-25.0'	6-Nov-97	8,400	ND(3.0)	5.99	111.0	0.7000	2.270	3,870	10.70	8.75	10.80	13,800	15.90	1,990	809	ND(.075)	17.00	1,060	ND(2.5)	ND(.185)	ND(2.5)	18.20	114.60
97B11-30.0'	6-Nov-97	7,130	ND(3.0)	ND(5.0)	125.0	0.5500	1.750	2,750	8.97	5.79	9.86	9,830	136.00	1,980	466	ND(.075)	12.10	1,010	ND(2.5)	ND(.185)	ND(2.5)	13.90	42.90

~~0.00~~ - STRIKETHROUGH INDICATES REJECTED DATA BASED ON ANALYSIS OUTSIDE OF HOLD TIME

0.00 - UNDERLINED VALUES ARE ESTIMATED

- SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL AND INDUSTRIAL SCREENING LEVELS

TABLE 2-3
METALS SOILS

(RESULTS REPORTED in mg/Kg)		CONCENTRATION LEVELS OF CONCERN mg/Kg (INDUSTRIAL / RESIDENTIAL)																					
		2000000 / 78000	820 / 31	3.8 / .43	140000 / 5500	4100 / 160	2000/ 78 1000 / 39		2000000 / 78000	120000 / 4700	82000 / 3100	610000 / 23000			290000 / 11000 41000 / 1600		41000 / 1600		10000 / 390	140 / 5.5	1200000 / 47000	14000 / 550	610000 / 23000
SAMPLE ID	DATE SAMPLED	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SILVER	THALLIUM	TIN	VANADIUM	ZINC
97B12-6"	10-Nov-97	2,580	ND(3.0)	ND(5.0)	62.9	0.1770	1.410	154,000	7.64	2.50	12.80	6,580	19.30	3,880	411	ND(.075)	7.05	619	ND(2.5)	ND(.185)	ND(2.5)	10.10	52.40
97B12-10.0'	10-Nov-97	7,590	ND(3.0)	ND(5.0)	137.0	0.5230	2.860	27,700	13.10	5.10	25.60	10,400	166.00	1,750	415	0.0910	15.50	1,680	ND(2.5)	ND(.185)	2.6100	18.60	25.30
97B12-15.0'	10-Nov-97	12,500	ND(3.0)	5.76	144.0	0.7950	2.880	3,190	14.40	9.30	12.80	14,600	16.80	2,290	763	ND(.075)	19.40	1,360	ND(2.5)	ND(.185)	ND(2.5)	18.00	51.80
97B12-20.0'	10-Nov-97	11,200	ND(3.0)	5.21	160.0	0.6990	2.710	3,050	13.30	8.14	12.20	13,400	15.60	2,260	673	ND(.075)	18.30	1,220	ND(2.5)	ND(.185)	ND(2.5)	19.10	55.70
97B12-DUP	10-Nov-97	10,400	ND(3.0)	5.23	158.0	0.6870	2.770	3,380	12.20	8.44	11.80	13,200	15.50	2,160	712	ND(.075)	18.90	1,170	ND(2.5)	ND(.185)	ND(2.5)	17.00	63.30
97B13-6"	11-Nov-97	1,300	ND(3.0)	ND(5.0)	42.0	0.0532	0.822	306,000	4.37	1.33	6.87	3,620	9.78	4,950	301	ND(.075)	5.37	378	4.190	ND(.185)	ND(2.5)	8.29	46.60
97B13-10.0'	11-Nov-97	10,100	ND(3.0)	6.02	148.0	0.7820	2.850	5,090	12.20	9.10	11.20	14,900	16.50	2,220	750	ND(.075)	20.90	1,270	ND(2.5)	ND(.185)	ND(2.5)	15.60	56.00
97B13-15.0'	11-Nov-97	10,100	ND(3.0)	ND(5.0)	131.0	0.7070	2.800	3,920	11.90	8.19	11.70	14,400	14.50	2,070	679	ND(.075)	18.10	1,070	ND(2.5)	ND(.185)	ND(2.5)	16.00	60.80
97B13-20.0'	11-Nov-97	10,900	ND(3.0)	7.72	150.0	0.7300	3.200	3,900	13.10	7.55	13.30	14,600	16.20	2,540	551	ND(.075)	16.20	1,170	ND(2.5)	0.190	ND(2.5)	25.70	77.00
97B13-25.0'	11-Nov-97	9,610	ND(3.0)	ND(5.0)	142.0	0.6290	2.430	3,210	12.20	7.14	10.80	13,400	13.10	1,980	626	ND(.075)	16.60	912	ND(2.5)	ND(.185)	ND(2.5)	16.70	57.40
97B13-30.0'	11-Nov-97	6,170	ND(3.0)	7.53	177.0	0.4910	2.610	4,620	9.67	7.80	14.70	12,600	12.10	1,580	1,810	ND(.075)	25.80	883	ND(2.5)	0.395	ND(2.5)	22.90	74.50
97B13-DUP	11-Nov-97	9,870	ND(3.0)	5.30	107.0	0.6990	2.720	3,330	12.00	8.55	12.70	13,800	14.40	1,950	904	ND(.075)	19.50	1,090	ND(2.5)	ND(.185)	ND(2.5)	17.50	47.00
97B14-6"	24-Nov-97	11,300	ND(3.0)	5.95	168.0	0.6930	2.800	2,640	10.30	7.03	11.60	14,300	15.80	2,160	618	ND(.075)	14.60	892	ND(2.5)	ND(.185)	ND(2.5)	20.00	57.90
97B14-5.0'	24-Nov-97	10,100	ND(3.0)	6.78	155.0	0.6690	2.840	3,300	11.00	7.36	13.10	14,800	15.40	2,433	537	ND(.075)	16.20	942	ND(2.5)	ND(.185)	ND(2.5)	19.20	76.10
97B14-10.0'	24-Nov-97	6,580	ND(3.0)	ND(5.0)	127.0	0.5670	2.420	3,350	11.20	7.61	12.50	12,600	16.60	2,050	339	ND(.075)	15.80	774	ND(2.5)	0.240	ND(2.5)	18.50	50.80
97B14-15.0'	24-Nov-97	6,950	ND(3.0)	ND(5.0)	98.3	0.4681	1.740	3,800	9.44	5.07	11.50	9,210	12.50	1,960	125	ND(.075)	11.90	1,000	ND(2.5)	ND(.185)	ND(2.5)	15.10	47.20
97B14-20.0'	24-Nov-97	4,940	ND(3.0)	ND(5.0)	85.8	0.3700	1.560	3,250	10.80	8.07	10.00	7,450	8.74	1,710	329	ND(.075)	15.20	835	ND(2.5)	ND(.185)	ND(2.5)	11.50	58.40
97B14-24.0'	24-Nov-97	5,280	ND(3.0)	ND(5.0)	78.7	0.3360	1.760	3,350	9.06	4.03	8.70	6,520	8.44	1,780	59	ND(.075)	12.30	711	ND(2.5)	ND(.185)	ND(2.5)	12.70	64.10
97B15-6"	25-Nov-97	12,500	ND(3.0)	9.08	132.0	0.8650	2.910	3,230	12.90	6.70	16.90	15,600	18.60	2,400	418	~~0.0840~~	14.70	951	ND(2.5)	0.205	ND(2.5)	20.90	48.50
97B15-5.0'	25-Nov-97	8,480	ND(3.0)	8.43	170.0	0.7390	2.850	4,590	10.40	7.25	14.50	14,600	14.70	2,540	715	~~0.1210~~	18.40	904	ND(2.5)	0.185	ND(2.5)	20.70	65.40
97B15-10.0'	25-Nov-97	6,680	ND(3.0)	7.58	133.0	0.6520	2.340	3,560	11.00	6.69	12.90	14,300	13.90	2,030	325	~~ND(.075)~~	15.60	864	ND(2.5)	ND(.185)	ND(2.5)	22.70	45.50
97B15-15.0'	25-Nov-97	5,840	ND(3.0)	8.05	185.0	0.5560	2.300	3,870	7.43	6.14	11.80	10,500	13.50	1,710	1,265	~~0.1190~~	15.40	864	ND(2.5)	ND(.185)	ND(2.5)	17.80	46.00
97B15-20.0'	25-Nov-97	5,980	ND(3.0)	ND(5.0)	108.0	0.5240	1.700	3,230	9.37	6.14	10.30	9,990	5.07	2,060	238	~~ND(.075)~~	14.80	855	ND(2.5)	ND(.185)	ND(2.5)	14.80	44.00
97B15-22.0'	25-Nov-97	5,460	ND(3.0)	ND(5.0)	99.6	0.4920	1.250	4,070	8.24	4.57	9.62	8,750	9.88	1,990	142	~~0.0760~~	9.54	791	ND(2.5)	ND(.185)	ND(2.5)	13.40	48.30
97B15-DUP	25-Nov-97	6,520	ND(3.0)	7.09	143.0	0.6270	2.060	3,900	17.30	5.62	11.20	11,900	13.30	2,230	472	0.0910	14.10	793	ND(2.5)	ND(.185)	ND(2.5)	17.40	51.10

~~0.00~~ - STRIKETHROUGH INDICATES REJECTED DATA BASED ON ANALYSIS OUTSIDE OF HOLD TIME

0.00 - UNDERLINED VALUES ARE ESTIMATED

- SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL AND INDUSTRIAL SCREENING LEVELS

TABLE 2-3
METALS IN SOILS

SAMPLE ID	DATE SAMPLED	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SILVER	THALLIUM	TIN	VANADIUM	ZINC
(RESULTS REPORTED in mg/Kg)	CONCENTRATION LEVELS OF CONCERN mg/Kg (INDUSTRIAL / RESIDENTIAL)	2000000 / 78000	820 / 31	3.8 / .43	140000 / 5500	4100 / 160	2000/ 78 1000 / 39		2000000 / 78000	120000 / 4700	82000 / 3100	610000 / 23000			290000 / 11000 41000 / 1600		41000 / 1600		10000 / 390	140 / 5.5	1200000 / 47000	14000 / 550	610000 / 23000
97B16-6"	26-Nov-97	12,100	ND(3.0)	7.01	361.0	0.8340	2.590	3,740	12.70	6.66	16.50	14,800	16.50	2,590	566	~~0.0128~~	18.00	1,040	ND(2.5)	0.340	ND(2.5)	21.00	55.50
97B16-5.0'	26-Nov-97	8,350	ND(3.0)	7.55	204.0	0.6630	2.260	3,230	13.80	6.50	12.10	12,300	14.20	2,300	799	~~0.0770~~	16.90	887	ND(2.5)	0.200	ND(2.5)	19.40	48.30
97B16-10.0'	26-Nov-97	7,130	ND(3.0)	6.05	149.0	0.6000	2.210	3,840	10.60	5.66	11.70	11,500	13.50	2,130	318	~~ND(.075)~~	13.80	844	ND(2.5)	0.270	ND(2.5)	15.60	54.10
97B16-15.0'	26-Nov-97	6,750	ND(3.0)	18.00	130.0	0.7286	3.640	4,130	10.70	5.12	12.20	21,500	14.20	2,000	609	~~0.1330~~	15.50	893	ND(2.5)	0.255	ND(2.5)	25.20	70.40
97B16-20.0'	26-Nov-97	7,360	ND(3.0)	ND(5.0)	88.6	0.5406	1.520	4,310	11.90	5.52	9.61	10,240	12.10	2,170	67	~~0.0840~~	14.30	927	ND(2.5)	ND(.185)	ND(2.5)	16.60	54.60
97B16-22.0'	26-Nov-97	5,440	ND(3.0)	ND(5.0)	77.3	0.4930	1.370	3,190	9.38	5.52	8.85	8,760	9.70	1,860	72	~~0.0930~~	13.40	687	ND(2.5)	0.195	ND(2.5)	11.60	41.60
98B17-0.0'	10-Mar-98	12,300	ND(3.0)	6.37	172.0	ND	2.460	37,100	13.50	6.28	12.20	14,800	11.60	3,110	488	0.0780	14.90	1,420	1.860	0.246	ND(2.5)	18.60	40.50
98B17-2.5'	10-Mar-98	9,800	ND(3.0)	8.37	197.0	ND	2.460	4,160	11.70	7.26	13.80	16,100	13.50	2,600	667	ND(.075)	16.60	1,120	1.030	0.226	ND(2.5)	16.50	47.40
98B17-5.0'	10-Mar-98	10,100	ND(3.0)	7.32	153.0	ND	2.280	7,510	12.20	7.56	13.40	15,800	13.80	2,740	536	ND(.075)	16.30	1,210	1.070	0.297	ND(2.5)	17.20	46.50
98B18-0.0'	11-Mar-98	8,350	ND(3.0)	ND(5.0)	154.0	ND	1.720	97,300	10.90	4.29	9.78	11,200	6.91	2,760	417	ND(.075)	10.40	1,100	2.050	0.222	ND(2.5)	15.10	34.10
98B18-2.5'	11-Mar-98	9,320	ND(3.0)	6.94	198.0	ND	2.670	4,080	11.50	7.48	13.30	15,600	13.10	2,600	612	ND(.075)	17.70	1,110	1.010	0.280	ND(2.5)	15.00	50.90
98B18-5.0'	11-Mar-98	8,440	ND(3.0)	6.66	186.0	ND	2.120	5,180	11.10	5.61	12.00	15,400	12.00	2,180	405	ND(.075)	13.20	986	1.010	0.333	ND(2.5)	13.70	47.60
98B18-7.5'	11-Mar-98	8,220	ND(3.0)	9.01	120.0	ND	4.200	26,800	20.20	7.72	22.00	15,100	21.10	2,360	1,420	ND(.075)	40.90	1,470	1.060	0.283	ND(2.5)	41.80	118.00
98B19-0.0'	11-Mar-98	13,500	ND(3.0)	5.11	165.0	ND	2.260	6,280	13.40	5.27	12.20	15,300	15.30	2,070	380	ND(.075)	16.10	1,810	1.120	0.218	ND(2.5)	17.60	46.80
98B19-2.5'	11-Mar-98	14,700	ND(3.0)	5.77	151.0	ND	2.330	28,200	13.90	6.49	14.30	15,600	14.20	2,400	518	ND(.075)	16.70	1,970	1.530	0.336	ND(2.5)	20.00	49.00
98B19-5.0'	11-Mar-98	1,300	ND(3.0)	6.54	139.0	ND	2.240	3,290	13.20	7.88	14.80	17,680	11.90	2,760	597	ND(.075)	16.50	1,310	1.010	0.370	ND(2.5)	19.50	47.30
98B19-7.5'	11-Mar-98	12,200	ND(3.0)	7.68	158.0	ND	2.400	3,650	12.30	7.96	13.00	17,200	14.10	2,650	630	ND(.075)	16.70	1,320	1.220	0.258	ND(2.5)	19.00	45.30
98B19-10.0'	11-Mar-98	8,800	ND(3.0)	10.30	183.0	ND	2.350	3,725	10.60	7.04	13.30	16,700	12.30	2,430	746	ND(.075)	19.30	1,100	1.240	0.210	ND(2.5)	16.10	49.10
98B19-12.5'	11-Mar-98	10,900	ND(3.0)	6.68	188.0	ND	2.420	5,013	13.20	6.26	11.00	18,900	12.00	2,630	465	ND(.075)	14.10	1,380	1.010	0.372	ND(2.5)	20.60	56.00
98B19-15.0'	11-Mar-98	8,580	ND(3.0)	7.91	210.0	ND	3.990	4,800	10.80	11.40	15.40	21,000	13.30	2,220	1,570	ND(.075)	38.10	1,150	1.250	0.446	ND(2.5)	21.50	56.60
98B19-16.8'	11-Mar-98	12,600	ND(3.0)	ND(5.0)	134.0	ND	2.190	12,300	13.70	6.70	12.40	14,700	14.60	2,390	491	ND(.075)	19.40	1,660	1.340	0.271	ND(2.5)	19.70	48.70
DUPLICATE	11-Mar-98	15,100	ND(3.0)	ND(5.0)	145.0	ND	2.080	48,800	16.50	6.11	11.30	14,400	15.10	2,780	452	ND(.075)	17.90	2,190	1.860	0.277	ND(2.5)	23.80	43.40

~~0.00~~ - STRIKETHROUGH INDICATES REJECTED DATA BASED ON ANALYSIS OUTSIDE OF HOLD TIME

0.00 - UNDERLINED VALUES ARE ESTIMATED

- SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL AND INDUSTRIAL SCREENING LEVELS

TABLE 2-4
PESTICIDES AND PCB'S IN SOIL

Concentrations reported in mg/Kg			CONCENTRATION LEVELS OF CONCERN mg/Kg (INDUSTRTRIAL / RESIDENTIAL)		
			3.2 / 0.35	1.30 / 0.14	2.9 / .32
BORING	DEPTH	DATE SAMPLED	beta-BHC	Heptachlor	PCB-1260
97B3					
	3"	14-Nov-97			0.07900
97B4					
	3"	20-Oct-97		0.05490	
97B5					
	6"	20-Oct-97		0.00760	0.09870
97B7					
	4"	21-Oct-97		0.00960	0.06100
	15'	21-Oct-97			0.02780
97B8					
	5'	21-Oct-97		0.00670	
	29'	22-Oct-97		0.00879	0.04000
97B9					
	2"	3-Nov-97			0.04700
	5'	3-Nov-97			0.01730
	10'	3-Nov-97			0.01090
97B10					
	6"	4-Nov-97			0.03600
	25'	4-Nov-97			0.01240
97B11					
	6"	5-Nov-97			0.01280
97B12					
	6"	10-Nov-97			0.04580
	20'	10-Nov-97		0.00285	
97B14					
	10'	24-Nov-97		0.01500	0.03570
	11'	24-Nov-97		0.00917	0.06870
	20'	24-Nov-97		0.00497	
97B16					
	6"	26-Nov-97	0.00881		
98B18					
	7.5'	11-Mar-98	0.00400	0.00700	0.44500
98B19					
	0'	11-Mar-98			0.04280
	12.5'	11-Mar-98			0.07300
	15.0'	11-Mar-98			0.02700
	16.8'	11-Mar-98			0.08400

0.00 UNDERLINED VALUES ARE ESTIMATED

SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL SCREENING LEVELS

TABLE 2-5

WET CHEMISTRY COMPOUNDS IN SOILS

Concentrations reported in mg/Kg			CONCENTRATION LEVELS OF CONCERN(INDUSTRTRIAL / RESIDENTIAL)		
			12,000 / 390	41000 / 1600	
BORING	DEPTH	DATE SAMPLED	Hexvalent Chromium	Total Cyanide	Total Sulfide
97B1					
	4"	13-Oct-97			4.760
97B2					
	4"	13-Oct-97			6.790
97B3					
	3"	14-Oct-97			3.340
97B9					
	2"	3-Nov-97			1.930
97B10					
	6"	4-Nov-97			1.930
97B14					
	10'	24-Nov-97			81.300
	20'	24-Nov-97			41.000
	24'	24-Nov-97			5.010
97B15					
	20'	25-Nov-97			40.600
	22'	25-Nov-97			16.300
97B16					
	10'	26-Jan-97			0.548
	15'	26-Nov-97			13.300
	20'	26-Nov-97			77.500
	22'	26-Nov-97			137.000
98B17					
	0'	10-Mar-98	NOT ANALYZED		1.170
98B18					
	2.5'	11-Mar-98	NOT ANALYZED		0.628
98B19					
	16.8'	11-Mar-98	NOT ANALYZED		23.000

0.00 UNDERLINED VALUES ARE ESTIMATED

SHADING DENOTES CONCENTRATIONS IN EXCESS OF RESIDENTIAL SCREENING LEVELS

TABLE 2-6
DIOXIN AND FURAN CONCENTRATIONS IN SOILS
VALUES ARE REPORTED IN pg/g EXCEPT AS NOTED

		CONCENTRATION LEVELS OF CONCERN (INDUSTRIAL / RESIDENTIAL) 3.80E-05 / 4.30E-06									
	FIELD ID	B18-0'		B18-5'		B19-0'		B19-5'		B19-10'	
	DEPTH (ft)	0 - 0.5		5		0 -0.5'		5		10	
	QAS LAB ID	80311001		80311003		80311005		80311007		80311009	
	MRI EXTRACT ID	39565		39566		39567		39568		39569	
	DATE SAMPLED	11-Mar-98		11-Mar-98		11-Mar-98		11-Mar-98		11-Mar-98	
ISOMER	TEF *	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE
2,3,7,8-TCDF	0.100	0.468	0.0468	0.448	0.0448	0.502	0.0502	0	0	0.426	0.0426
2,3,7,8-TCDD	1.000	0	0	0.122	0.122	0.161	0.161	0	0	0.382	0.382
1,2,3,7,8-PECDF	0.050	0.225	0.01125	0	0	0	0	0	0	0	0
2,3,4,7,8-PECDF	0.500	0	0	0	0	1.01	0.505	0	0	0	0
1,2,3,7,8-PECDD	0.500	0	0	0	0	0	0	0	0	0.419	0.2095
1,2,3,4,7,8-HXCDF	0.100	0	0	0	0	0	0	0	0	0	0
1,2,3,6,7,8-HXCDF	0.100	0	0	0	0	0.321	0.0321	0	0	0.073	0.0073
2,3,4,6,7,8-HXCDF	0.100	0.499	0.0499	0.396	0.0396	0.818	0.0818	0	0	0.317	0.0317
1,2,3,7,8,9-HXCDF	0.100	0	0	0	0	0	0	0	0	0	0
1,2,3,4,7,8-HXCDD	0.100	0.221	0.0221	0	0	0.14	0.014	0.1	0.01	0	0
1,2,3,6,7,8-HXCDD	0.100	0	0	0.37	0.037	0	0	0	0	0	0
1,2,3,7,8,9-HXCDD	0.100	0.496	0.0496	0.577	0.0577	0.324	0.0324	0	0	0	0
1,2,3,4,6,7,8-HPCDF	0.010	0.661	0.00661	0.249	0.00249	1.95	0.0195	0	0	0	0
1,2,3,4,7,8,9-HPCDF	0.010	0	0	0	0	0	0	0	0	0	0
1,2,3,4,6,7,8-HPCDD	0.010	2.62	0.0262	2.14	0.0214	6.22	0.0622	1.89	0.0189	2.22	0.0222
1,2,3,4,6,7,8,9-OCDF	0.001	0.838	0.000838	0.382	0.000382	3.13	0.00313	0.259	0.000259	0	0
1,2,3,4,6,7,8,9-OCDD	0.001	15.5	0.0155	9.89	0.00989	97.3	0.0973	13.2	0.0132	21.4	0.0214
WEIGHTED TOTAL (pg/g)			2.29E-01		3.35E-01		1.06E+00		4.24E-02		7.17E-01
WEIGHTED TOTAL (mg/kg)			2.29E-07		3.35E-07		1.06E-06		4.24E-08		7.17E-07

* The reported value for each isomer is multiplied by the Toxicity Equivalence Factor (TEF). The weighted total of all isomers detected in the sample are compared to the Risk-Based Concentration values listed for isomer 2,3,7,8-TCDD (dioxin).

TABLE 2-6

DIOXIN AND FURAN CONCENTRATIONS IN SOILS

VALUES ARE REPORTED IN pg/g EXCEPT AS NOTED

		CONCENTRATION LEVELS OF CONCERN (INDUSTRIAL / RESIDENTIAL) 3.80E-05 / 4.30E-06									
FIELD ID		B19-15'		DUP		B17-0'		B17-5'			
DEPTH (ft)		15		16.8		0'		5			
QAS LAB ID		80311011		80311013		80310001		80310003			
MRI EXTRACT ID		39570		39571		40213		40214			
DATE SAMPLED		11-Mar-98		11-Mar-98		10-Mar-98		10-Mar-98			
ISOMER	TEF *	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE	REPORTED VALUE	WEIGHTED VALUE
2,3,7,8-TCDF	0.100	0	0	0.875	0.0875	0	0	0	0		0
2,3,7,8-TCDD	1.000	0.435	0.435	0	0	0	0	0	0		0
1,2,3,7,8-PECDF	0.050	0	0	0.324	0.0162	0	0	0	0		0
2,3,4,7,8-PECDF	0.500	0	0	1.17	0.585	0	0	0	0		0
1,2,3,7,8-PECDD	0.500	0.51	0.255	0.266	0.133	0	0	0	0		0
1,2,3,4,7,8-HXCDF	0.100	0.166	0.0166	0.475	0.0475	0	0	0	0		0
1,2,3,6,7,8-HXCDF	0.100	0	0	0.327	0.0327	0	0	0	0		0
2,3,4,6,7,8-HXCDF	0.100	0.39	0.039	0.872	0.0872	0	0	0	0		0
1,2,3,7,8,9-HXCDF	0.100	0	0	0	0	0	0	0	0		0
1,2,3,4,7,8-HXCDD	0.100	0	0	0.19	0.019	0	0	0	0		0
1,2,3,6,7,8-HXCDD	0.100	0	0	0.37	0.037	0	0	0	0		0
1,2,3,7,8,9-HXCDD	0.100	0.612	0.0612	0.332	0.0332	0	0	0	0		0
1,2,3,4,6,7,8-HPCDF	0.010	0.674	0.00674	1.69	0.0169	0	0	0	0		0
1,2,3,4,7,8,9-HPCDF	0.010	0.18	0.0018	0	0	0	0	0	0		0
1,2,3,4,6,7,8-HPCDD	0.010	5.28	0.0528	5.62	0.0562	7.24	0.0724	6.71	0.0671		0
1,2,3,4,6,7,8,9-OCDF	0.001	1.63	0.00163	2.4	0.0024	5.9	0.0059	7.04	0.00704		0
1,2,3,4,6,7,8,9-OCDD	0.001	77.7	0.0777	86.6	0.0866	68.3	0.0683	59.4	0.0594		0
WEIGHTED TOTAL (pg/g)			9.47E-01		1.24E+00		1.47E-01		1.34E-01		0.00E+00
WEIGHTED TOTAL (mg/kg)			9.47E-07		1.24E-06		1.47E-07		1.34E-07		0

* *The reported value for each isomer is multiplied by the Toxicity Equivalence Factor (TEF). The weighted total of all isomers detected in the sample are compared to the Risk-Based Concentration values listed for isomer 2,3,7,8-TCDD (dioxin).*

TABLE 3-1

NON-AQEOUS PHASE LIQUID ANALYSIS

		METHODS									
		SW-846-1010	ASTM D808 mod.	SAYBOLT @ 100 F	OA-1	SW-846-8080		SW-846-6010	SW-846-6010	SW-846-6010	SW-846-6010
WELL ID	DATE SAMPLED	FLASH POINT	HALOGENS	VISCOSITY	TPH	PCB- 1260		ARSENIC	CADMIUM	CHROMIUM	LEAD
GW-2	25-Mar-98	>220 F	549 mg/Kg	150 SUS	261 mg/L	133 mg/Kg		10.3 mg/Kg	5.87mg/Kg	4.10 mg/Kg	112 mg/Kg
GW-3	25-Mar-98	180 F	673 mg/Kg	126 SUS	1570 mg/L	185 mg/Kg		15.1 mg/Kg	1.03 mg/Kg	6.71 mg/Kg	113 mg/Kpg
GW-4	25-Mar-98	NS	NS	NS	NS	NS		NS	NS	NS	NS
EPA-R-1	25-Mar-98	170 F	501 mg/Kg	130 SUS	1500 mg/L	25.0 mg/L		26.2 mg/Kg	0.514 mg/Kg	3.98 mg/Kg	97.7 mg/Kg

NS NOT SAMPLED (NON-AQUEOUS PHASE LIQUID NOT ENCOUNTERED)

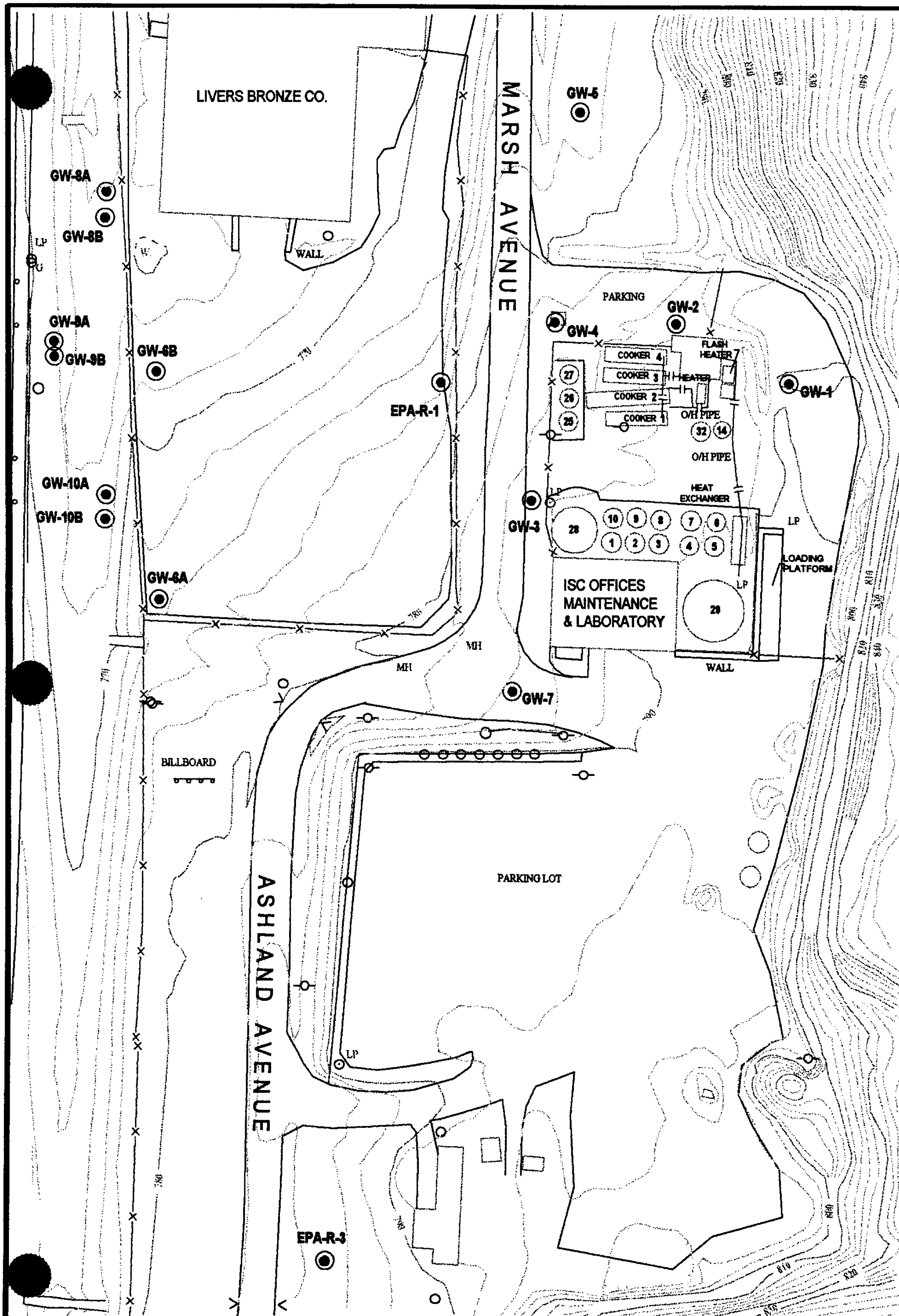
TABLE 4-1

VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER FROM PRODUCT WELLS

Concentrations reported in ug/L		CONCENTRATION LEVELS OF CONCERN (FEDERAL / STATE)									
		5.0 / 5.0				700 /700	1000 / 1000	200 / 200	5.0 / 5.0	2.0 / 2.0	10000 / 10000
WELL ID	DATE SAMPLED	BENZENE	CLORORETHANE	1,1-DICHLOROETHANE	CIS-1,2-DICHLOROETHENE	ETHYLBENZENE	TOLUENE	1,1,1-TRICHLOROETHANE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENE
GW-2	12-Nov-98	63.40	64.70								
GW-3	12-Nov-98	323.00	174.00			53.30	76.90				188.00
GW-4	12-Nov-98	141.00	99.60			267.00	199.00			7.85	1060.00
EPA-R-1	12-Nov-98	322.00		43.10	118.00	103.00	421.00	83.30		41.60	616.00

SHADING DENOTES CONCENTRATIONS IN EXCESS OF REGULATED LEVELS

FIGURES



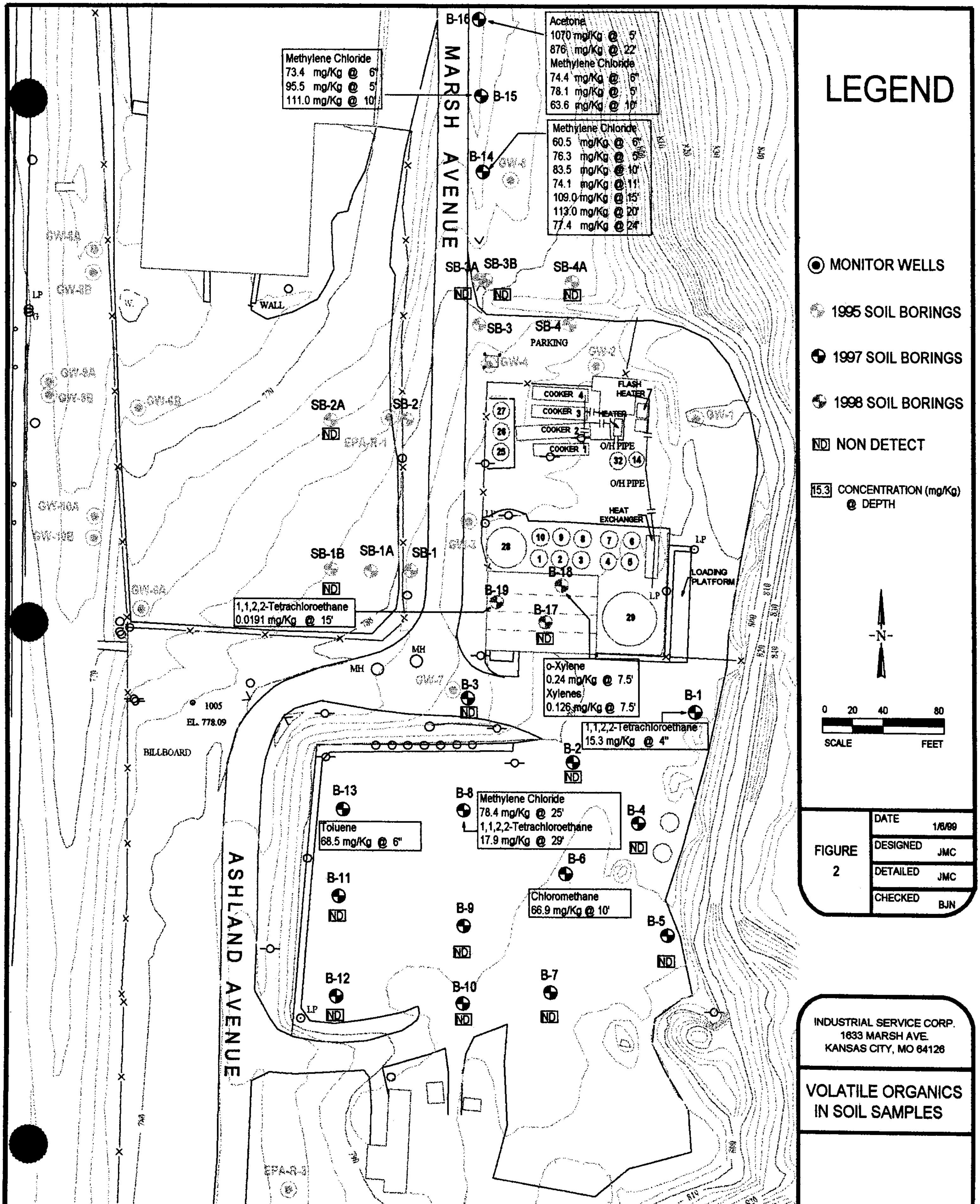
LEGEND

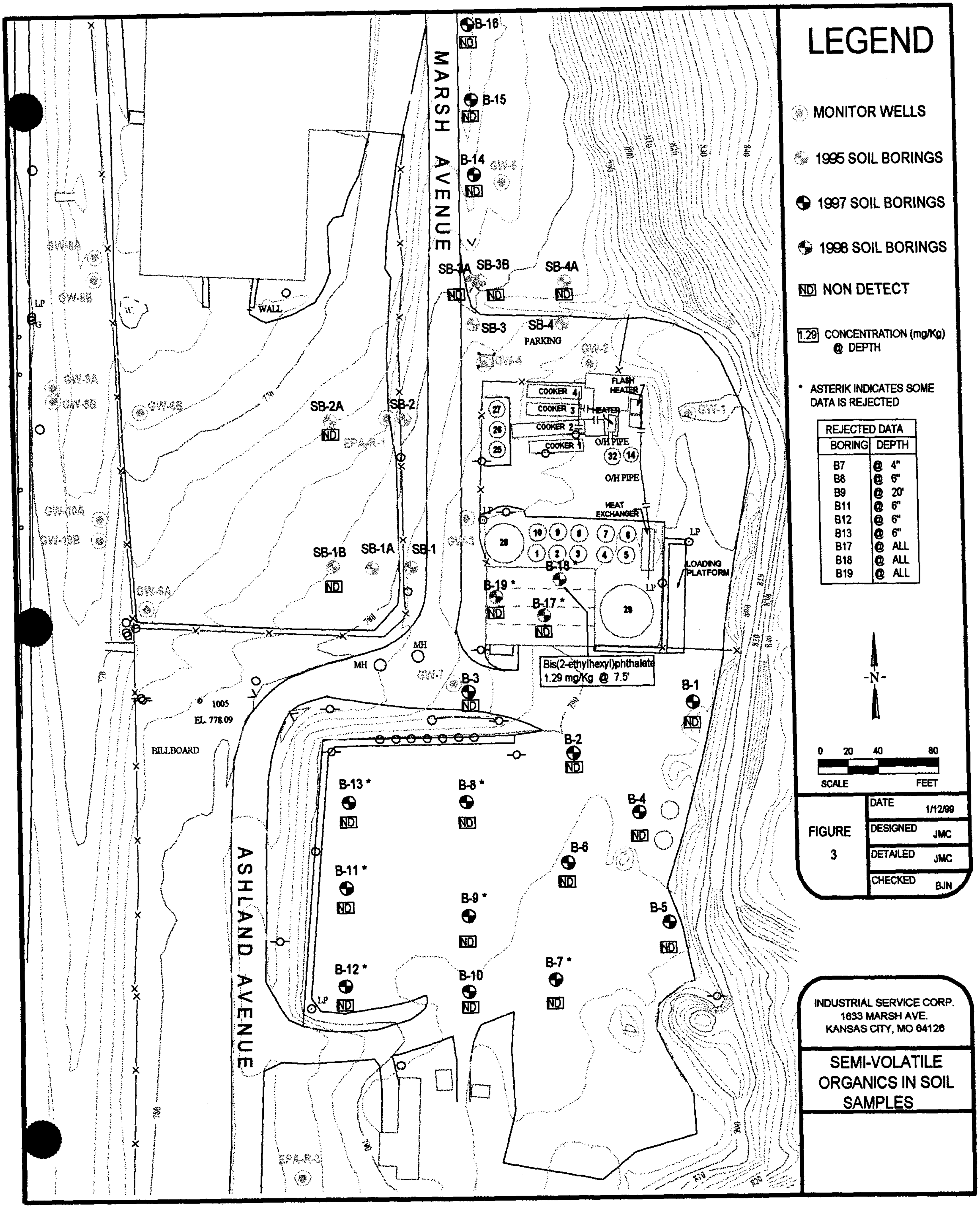
MONITOR WELLS

FIGURE 1	DATE	5/13/98
	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

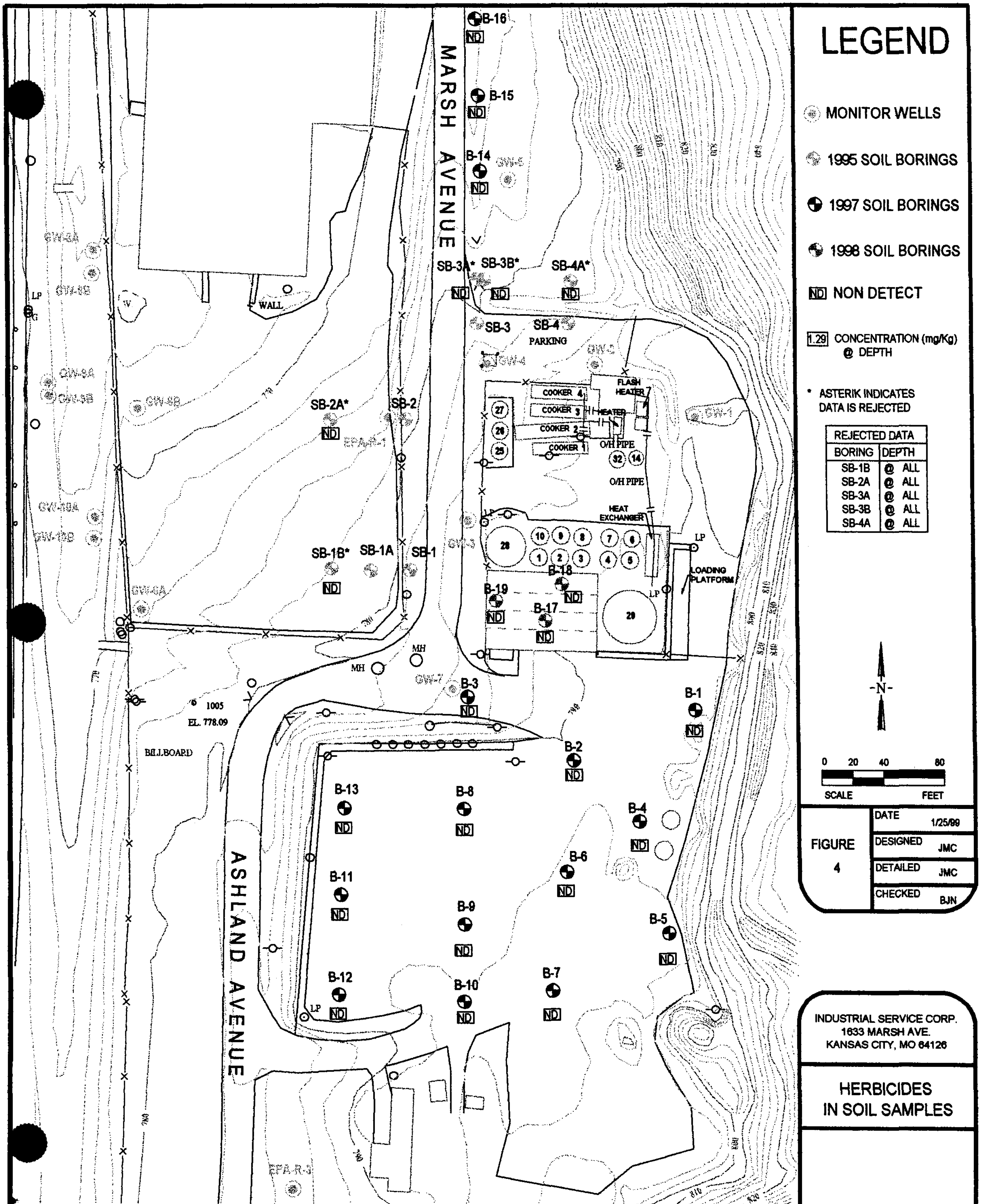
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

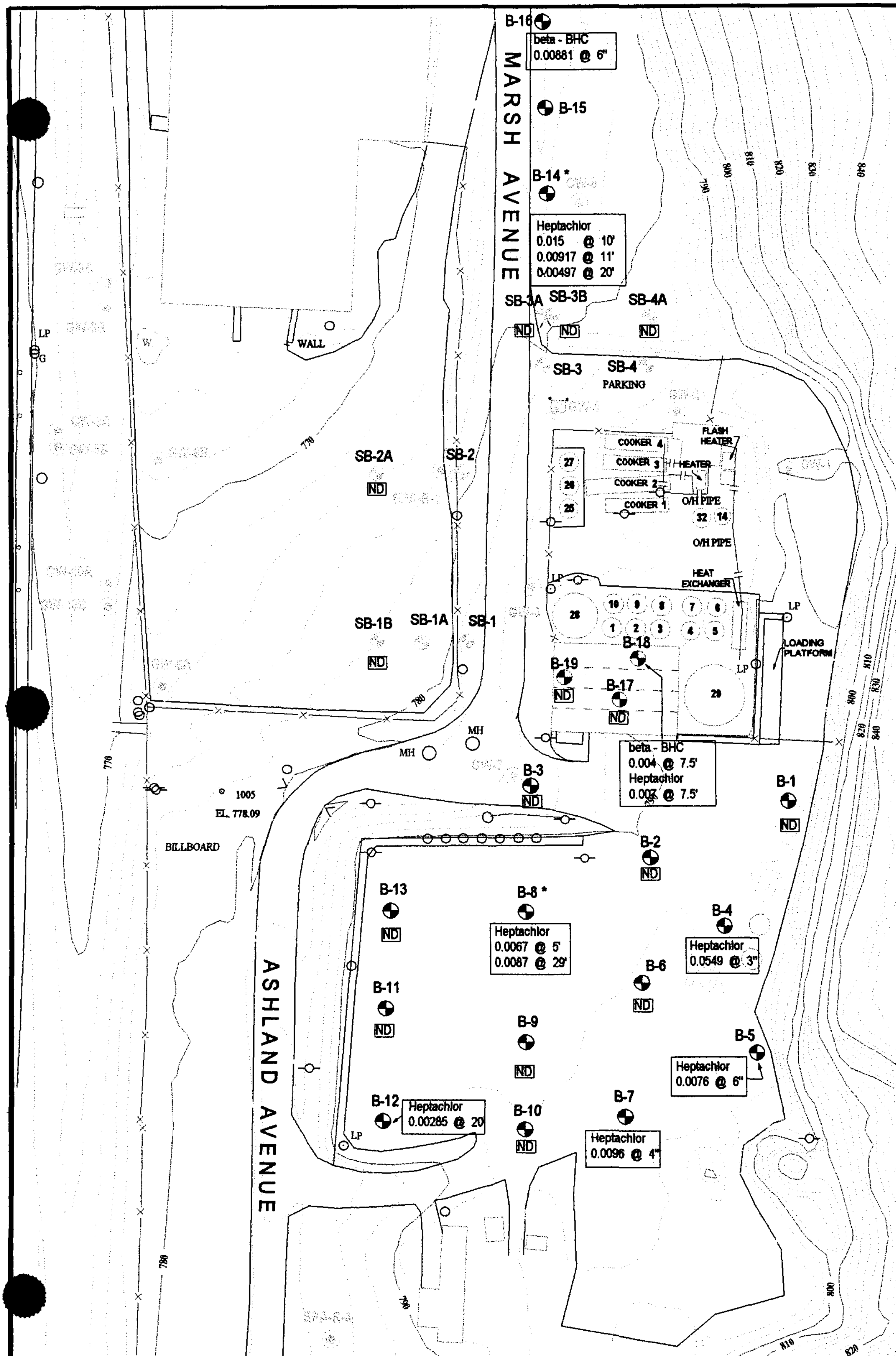
SITE MAP


LEGEND
MONITOR WELLS
1995 SOIL BORINGS
1997 SOIL BORINGS
1998 SOIL BORINGS
ND NON DETECT
15.3 CONCENTRATION (mg/Kg) @ DEPTH
N
0 20 40 80
SCALE FEET
FIGURE 2
DATE 1/6/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
VOLATILE ORGANICS IN SOIL SAMPLES
MARSH AVENUE
ASHLAND AVENUE
B-16
Acetone
1070 mg/Kg @ 5'
876 mg/Kg @ 22'
Methylene Chloride
74.4 mg/Kg @ 6"
78.1 mg/Kg @ 5'
63.6 mg/Kg @ 10'
B-15
Methylene Chloride
73.4 mg/Kg @ 6"
95.5 mg/Kg @ 5'
111.0 mg/Kg @ 10'
B-14
Methylene Chloride
60.5 mg/Kg @ 6"
76.3 mg/Kg @ 5'
83.5 mg/Kg @ 10'
74.1 mg/Kg @ 11'
109.0 mg/Kg @ 15'
113.0 mg/Kg @ 20'
77.4 mg/Kg @ 24'
SB-3A ND
SB-3B ND
SB-4A ND
SB-3
SB-4
PARKING
WALL
SB-2A ND
SB-2
EPA-R-1
SB-1B ND
SB-1A
SB-1
COOKER 4
COOKER 3
COOKER 2
COOKER 1
FLASH HEATER
HEATER
O/H PIPE
HEAT EXCHANGER
LOADING PLATFORM
LP
B-18
B-19
1,1,2,2-Tetrachloroethane
0.0191 mg/Kg @ 15'
B-17 ND
MH
B-3 ND
o-Xylene
0.24 mg/Kg @ 7.5'
Xylenes
0.126 mg/Kg @ 7.5'
B-1
1,1,2,2-Tetrachloroethane
15.3 mg/Kg @ 4"
1005
EL. 778.09
BILLBOARD
B-2 ND
B-13
Toluene
68.5 mg/Kg @ 6"
B-8
Methylene Chloride
78.4 mg/Kg @ 25'
1,1,2,2-Tetrachloroethane
17.9 mg/Kg @ 29'
B-4 ND
B-6
Chloromethane
66.9 mg/Kg @ 10'
B-11 ND
B-9 ND
B-5 ND
B-12 ND
B-10 ND
B-7 ND
EPA-R-3



LEGEND
MONITOR WELLS
1995 SOIL BORINGS
1997 SOIL BORINGS
1998 SOIL BORINGS
ND NON DETECT
1.29 CONCENTRATION (mg/Kg) @ DEPTH
* ASTERIK INDICATES SOME DATA IS REJECTED
REJECTED DATA
BORING DEPTH
B7 @ 4"
B8 @ 6"
B9 @ 20'
B11 @ 6"
B12 @ 6"
B13 @ 6"
B17 @ ALL
B18 @ ALL
B19 @ ALL
-N-
0 20 40 80
SCALE FEET
FIGURE 3
DATE 1/12/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
SEMI-VOLATILE ORGANICS IN SOIL SAMPLES
MARSH AVENUE
ASHLAND AVENUE
B-16
B-15
B-14
SB-3A
SB-3B
SB-4A
SB-3
SB-4
PARKING
SB-2A
SB-2
SB-1B
SB-1A
SB-1
GW-4
GW-2
GW-1
GW-7
COOKER 4
COOKER 3
COOKER 2
COOKER 1
HEATER
FLASH HEATER
O/H PIPE
HEAT EXCHANGER
LOADING PLATFORM
B-18 *
B-19 *
B-17 *
Bis(2-ethylhexyl)phthalate
1.29 mg/Kg @ 7.5'
B-3
B-1
B-2
B-13 *
B-8 *
B-4
B-6
B-11 *
B-9 *
B-5
B-12 *
B-10
B-7 *
ND
WALL
BILLBOARD
1005
EL. 778.09
MH
LP


LEGEND
MONITOR WELLS
1995 SOIL BORINGS
1997 SOIL BORINGS
1998 SOIL BORINGS
ND NON DETECT
1.29 CONCENTRATION (mg/Kg) @ DEPTH
* ASTERIK INDICATES DATA IS REJECTED
REJECTED DATA
BORING DEPTH
SB-1B @ ALL
SB-2A @ ALL
SB-3A @ ALL
SB-3B @ ALL
SB-4A @ ALL
-N-
0 20 40 80
SCALE FEET
FIGURE 4
DATE 1/25/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
HERBICIDES IN SOIL SAMPLES
MARSH AVENUE
ASHLAND AVENUE
B-16
B-15
B-14
GW-5
SB-3A*
SB-3B*
SB-4A*
SB-3
SB-4
PARKING
GW-4
GW-2
GW-1
WALL
GW-8A
GW-8B
GW-9A
GW-9B
GW-6B
SB-2A*
SB-2
EPA-R-1
COOKER 4
COOKER 3
COOKER 2
COOKER 1
FLASH HEATER
HEATER
O/H PIPE
HEAT EXCHANGER
LOADING PLATFORM
GW-10A
GW-10B
SB-1B*
SB-1A
SB-1
GW-3
GW-6A
B-18
B-19
B-17
MH
GW-7
B-3
B-1
1005
EL. 778.09
BILLBOARD
B-2
B-13
B-8
B-4
B-6
B-11
B-9
B-5
B-12
B-10
B-7
EPA-R-3
LP
ND



LEGEND

MONITOR WELLS

1995 SOIL BORINGS

1997 SOIL BORINGS

1998 SOIL BORINGS

ND NON DETECT

0.054 CONCENTRATION (mg/Kg) @ DEPTH

* ASTERIK INDICATES SOME DATA IS ESTIMATED

N

0 20 40 80

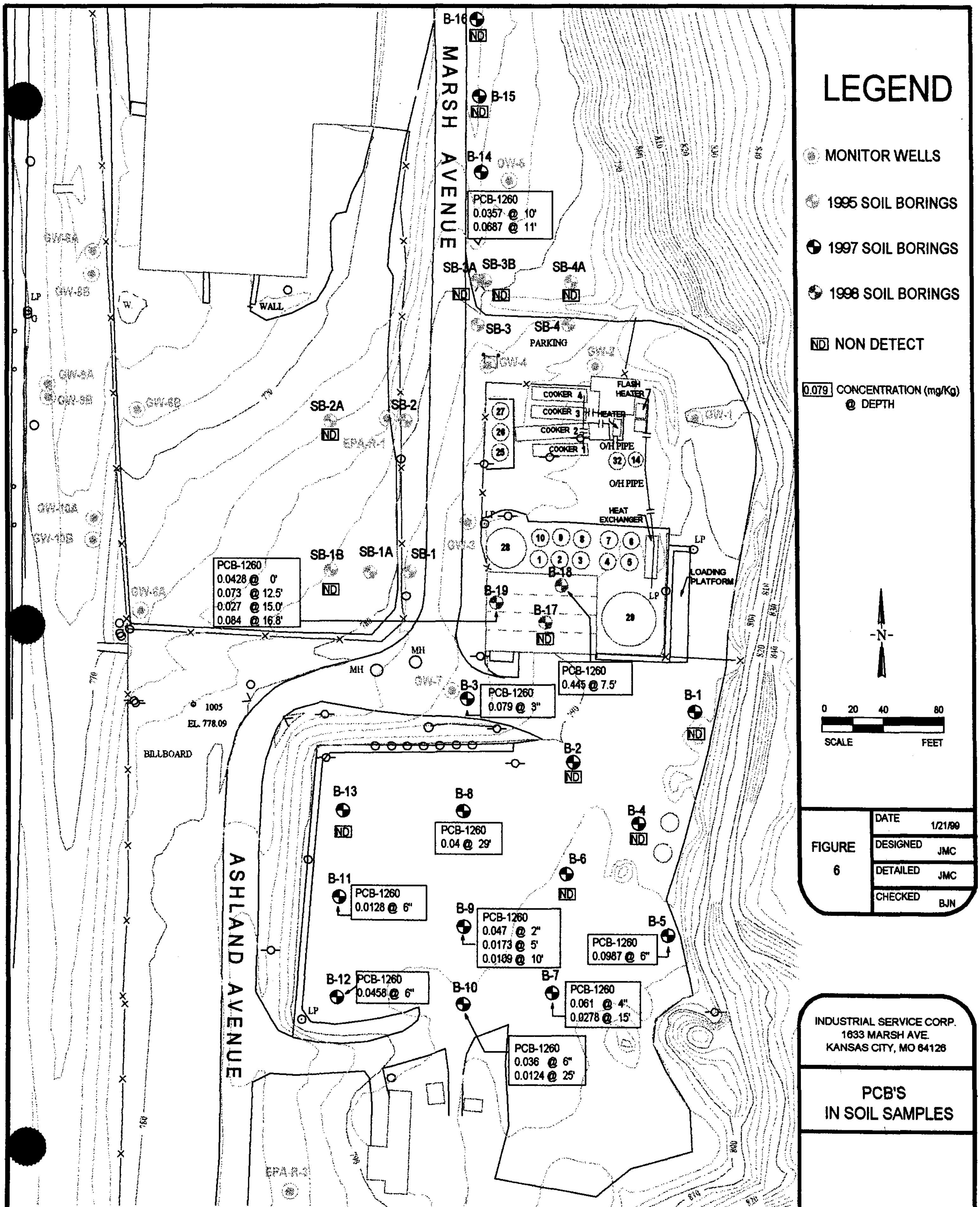
SCALE FEET

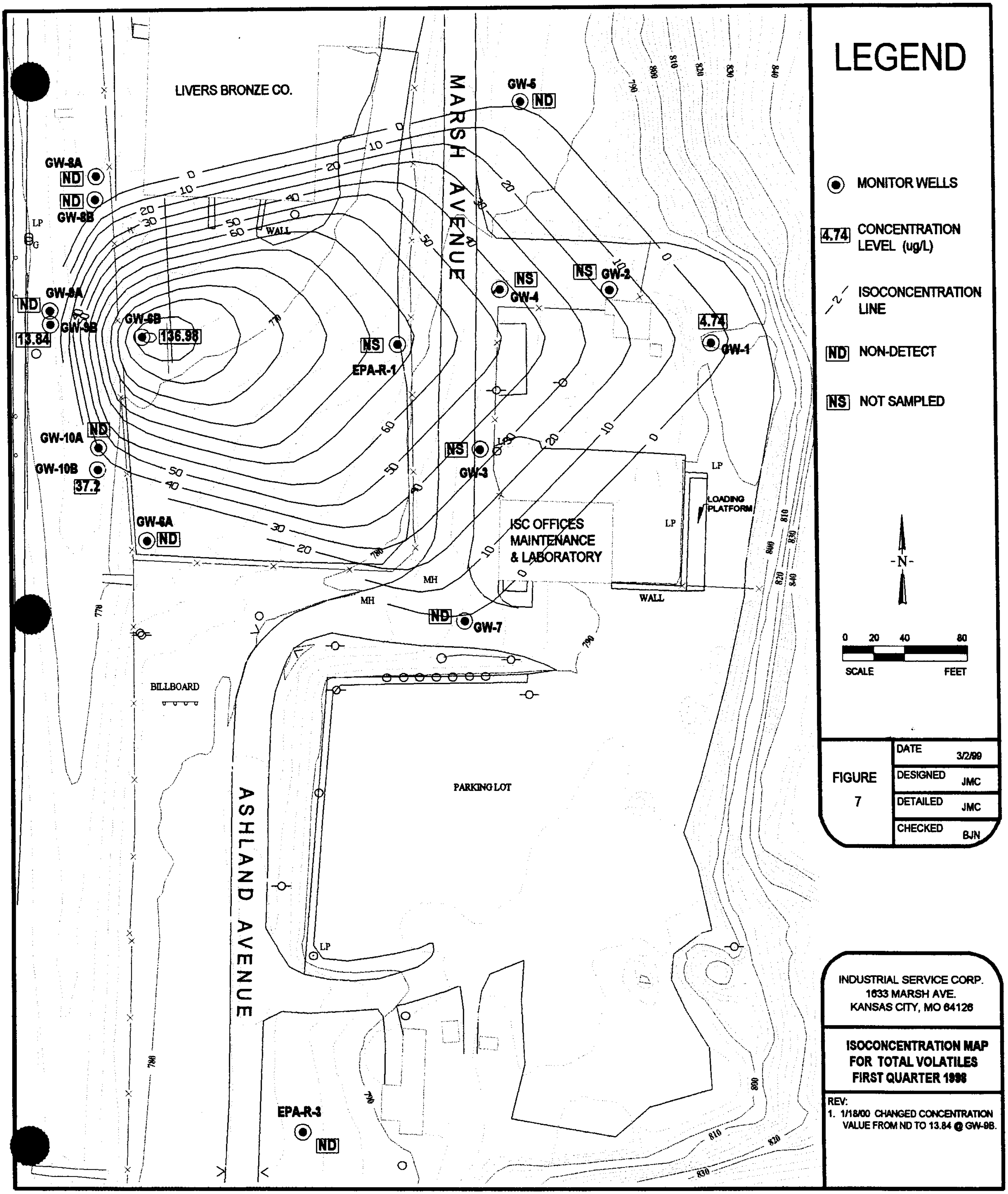
FIGURE 5		
	DATE	1/15/99
	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

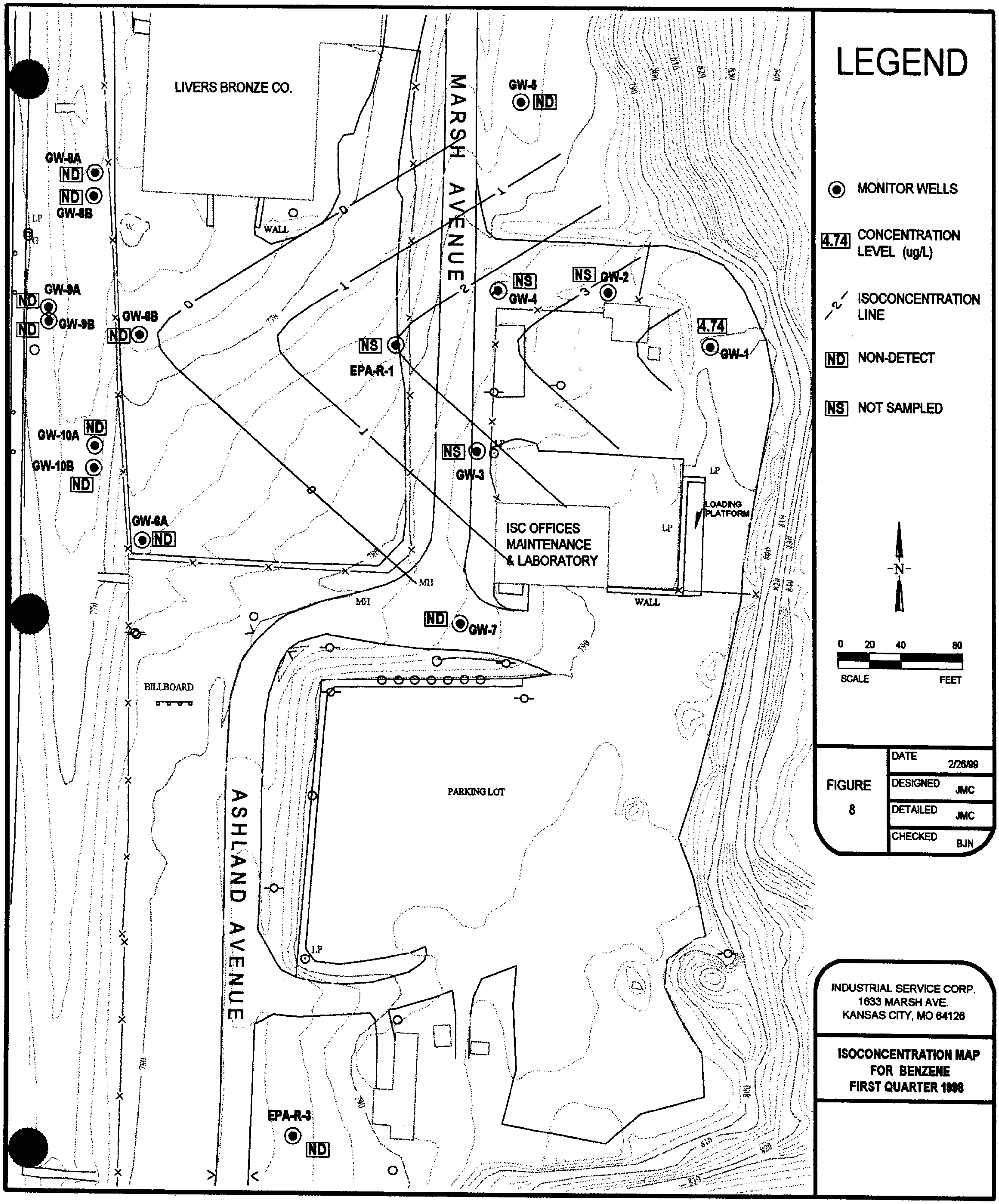
PESTICIDES
IN SOIL SAMPLES

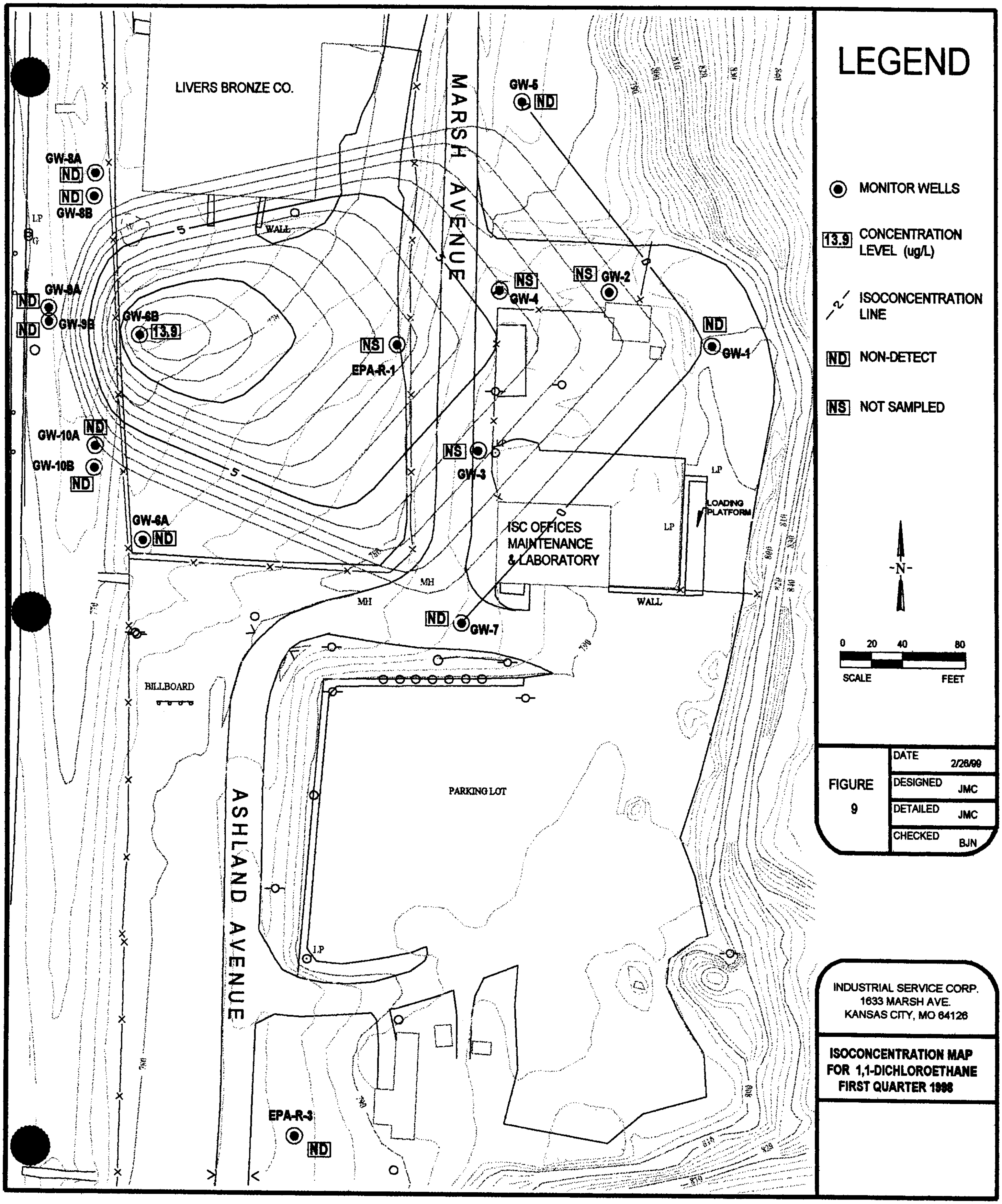
REV:
1. 1/17/00 ADDED HEPTACHLOR TO BORING B-18.


LEGEND
MONITOR WELLS
1995 SOIL BORINGS
1997 SOIL BORINGS
1998 SOIL BORINGS
ND NON DETECT
0.079 CONCENTRATION (mg/Kg) @ DEPTH
-N-
0 20 40 80
SCALE FEET
FIGURE 6
DATE 1/21/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
PCB'S
IN SOIL SAMPLES
MARSH AVENUE
ASHLAND AVENUE
B-16 ND
B-15 ND
B-14
PCB-1260
0.0357 @ 10'
0.0687 @ 11'
SB-3A ND
SB-3B ND
SB-4A ND
SB-3
SB-4
PARKING
SB-2A ND
SB-2
SB-1B ND
SB-1A
SB-1
PCB-1260
0.0428 @ 0'
0.073 @ 12.5'
0.027 @ 15.0'
0.084 @ 16.8'
COOKER 4
COOKER 3
COOKER 2
COOKER 1
FLASH HEATER
HEATER
O/H PIPE
HEAT EXCHANGER
LOADING PLATFORM
B-18
B-19
B-17 ND
PCB-1260
0.445 @ 7.5'
B-3
PCB-1260
0.079 @ 3"
B-1 ND
B-2 ND
BILLBOARD
1005
EL. 778.09
WALL
B-13 ND
B-8
PCB-1260
0.04 @ 29'
B-4 ND
B-6 ND
B-11
PCB-1260
0.0128 @ 6"
B-9
PCB-1260
0.047 @ 2"
0.0173 @ 5'
0.0109 @ 10'
B-5
PCB-1260
0.0987 @ 6"
B-12
PCB-1260
0.0458 @ 6"
B-10
B-7
PCB-1260
0.061 @ 4"
0.0278 @ 15'
PCB-1260
0.036 @ 6"
0.0124 @ 25'



LEGEND
MONITOR WELLS
4.74 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
SCALE FEET
0 20 40 80
N
FIGURE 7
DATE 3/2/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP FOR TOTAL VOLATILES FIRST QUARTER 1998
REV:
1. 1/18/00 CHANGED CONCENTRATION VALUE FROM ND TO 13.84 @ GW-9B.
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
ISC OFFICES MAINTENANCE & LABORATORY
LOADING PLATFORM
PARKING LOT
BILLBOARD
WALL
MH
LP
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B 13.84
GW-6B 136.98
EPA-R-1 NS
GW-4 NS
GW-2 NS
GW-1 4.74
GW-3 NS
GW-10A ND
GW-10B 37.2
GW-6A ND
GW-7 ND
EPA-R-3 ND


LEGEND
MONITOR WELLS
4.74 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 8
DATE 2/26/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR BENZENE
FIRST QUARTER 1999
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B ND
GW-10A ND
GW-10B ND
GW-6A ND
EPA-R-1 NS
GW-4 NS
GW-2 NS
GW-1 4.74
GW-3 NS
GW-7 ND
EPA-R-3 ND
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
WALL
BILLBOARD
PARKING LOT
MH
LP



LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B 13.9
EPA-R-1 NS
GW-4 NS
GW-2 NS
GW-1 ND
GW-3 NS
GW-10A ND
GW-10B ND
GW-6A ND
GW-7 ND
EPA-R-3 ND
WALL
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
BILLBOARD
PARKING LOT
MH
LP
LEGEND
MONITOR WELLS
13.9 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 9
DATE 2/26/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR 1,1-DICHLOROETHANE
FIRST QUARTER 1998

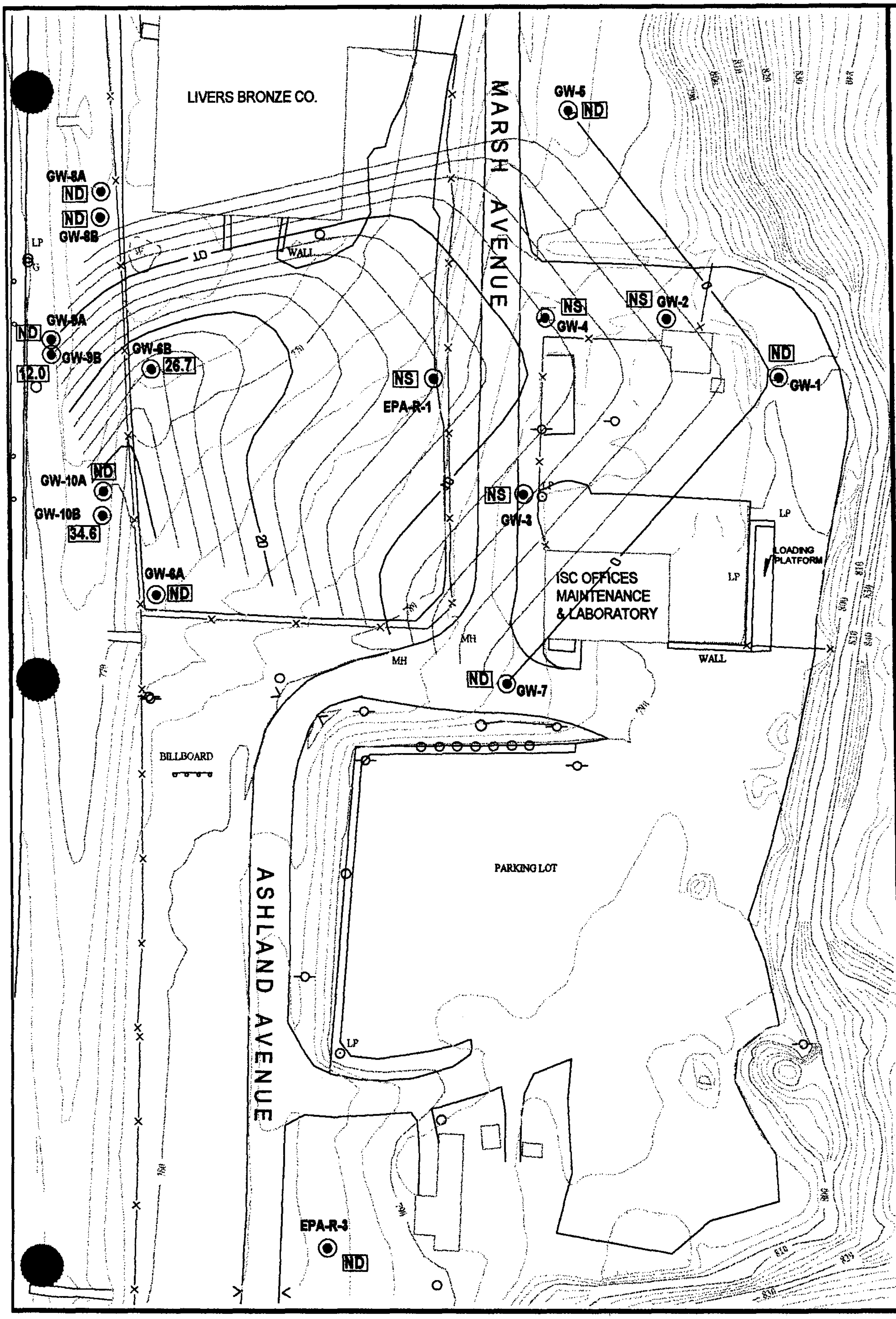
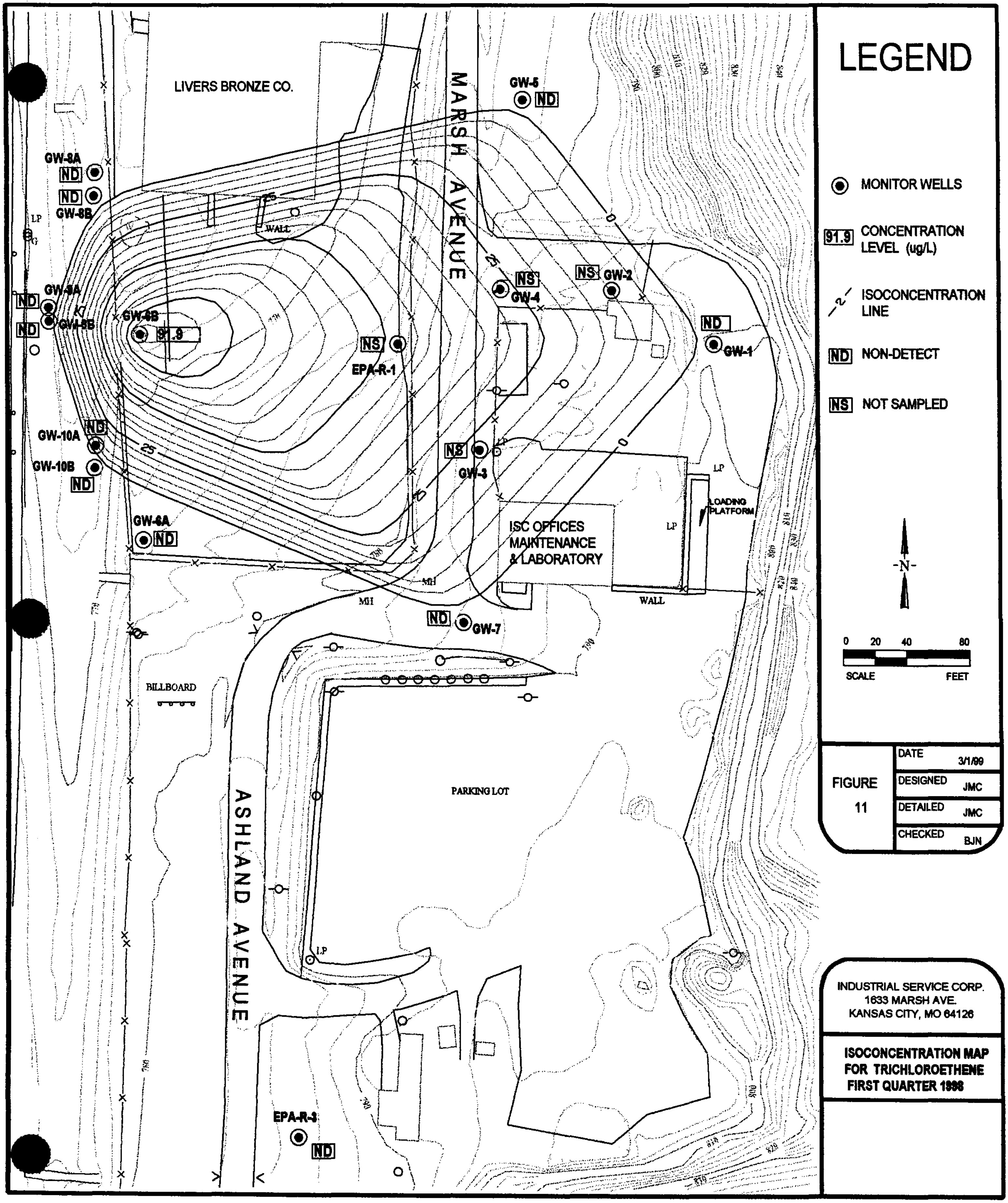
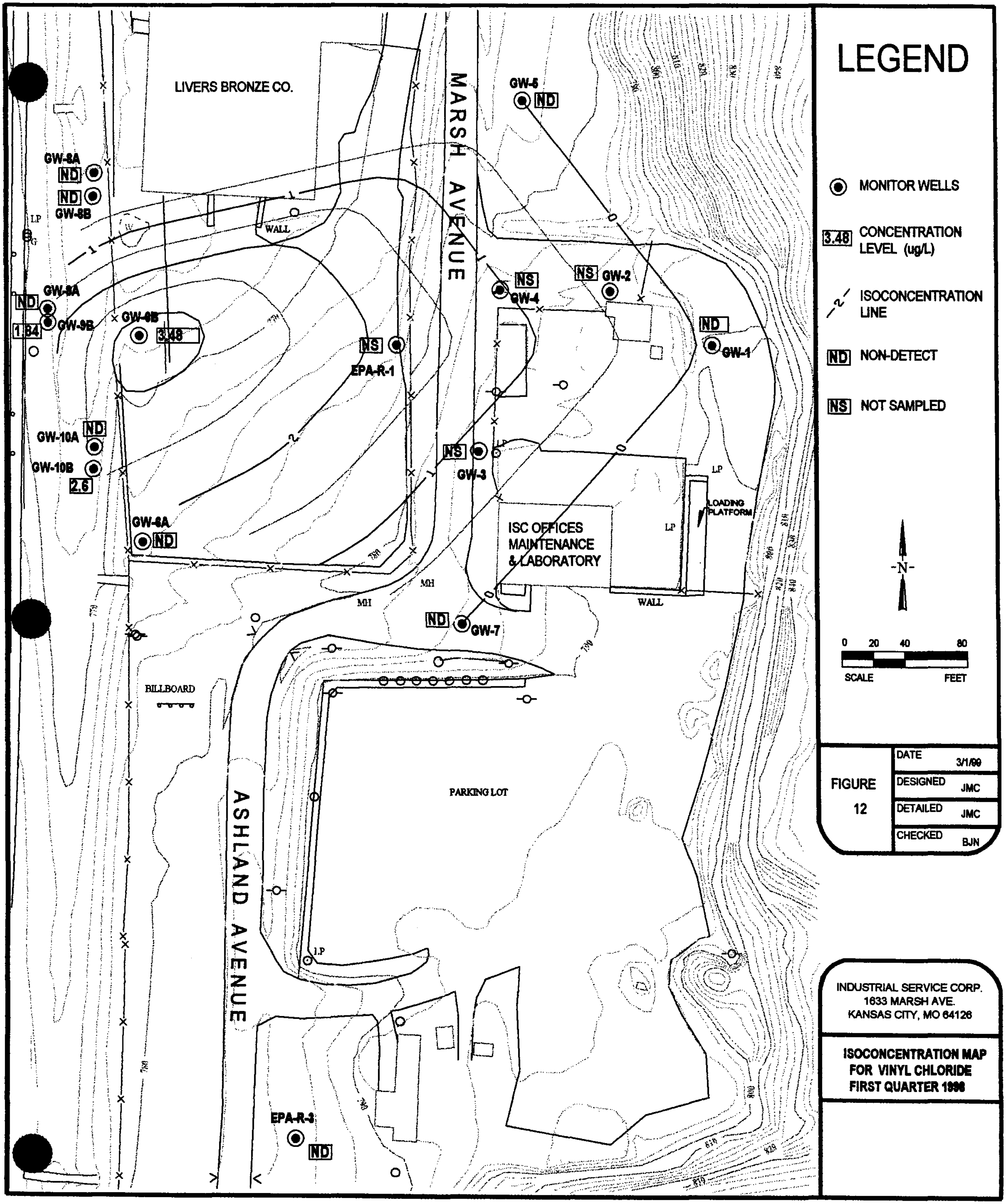


FIGURE 10	DATE	2/26/99
	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

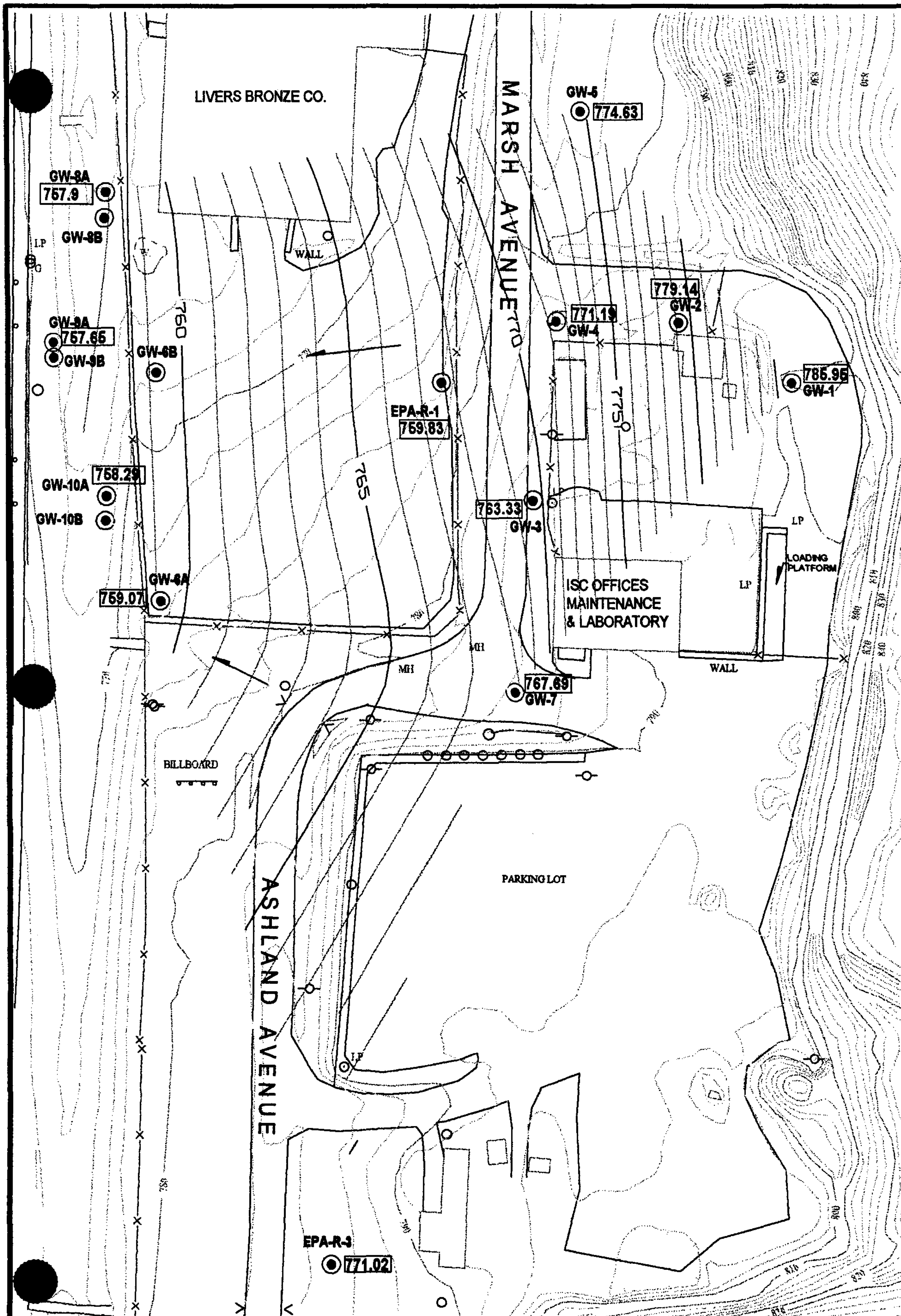
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

ISOCONCENTRATION MAP FOR cis-1,2-DICHLOROETHENE FIRST QUARTER 1998


LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B 91.9
EPA-R-1 NS
GW-4 NS
GW-2 NS
GW-1 ND
GW-10A ND
GW-10B ND
GW-3 NS
GW-6A ND
GW-7 ND
EPA-R-3 ND
WALL
LP
MH
25
0
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
BILLBOARD
PARKING LOT
LEGEND
MONITOR WELLS
91.9 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 11
DATE 3/1/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR TRICHLOROETHENE
FIRST QUARTER 1999



LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5
ND
GW-8A
ND
ND
GW-8B
WALL
GW-9A
ND
1.84
GW-9B
GW-6B
3.48
NS
EPA-R-1
NS
GW-4
NS
GW-2
ND
GW-1
GW-10A
ND
GW-10B
2.6
NS
GW-3
GW-6A
ND
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
WALL
MH
MH
ND
GW-7
BILLBOARD
PARKING LOT
EPA-R-3
ND
LEGEND
MONITOR WELLS
3.48 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 12
DATE 3/1/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR VINYL CHLORIDE
FIRST QUARTER 1999



LEGEND

MONITOR WELLS

779.14 STATIC WATER ELEVATION

775 EQUIPOTENTIAL LINE

-N-

0 20 40 80

SCALE FEET

FIGURE 13	DATE	2/23/99
	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

GROUNDWATER FLOW MAP
FIRST QUARTER 1998

POTENTIOMETRIC SURFACE BASED ON STATIC WATER ELEVATIONS DATED 3/24/98 WITH WELLS SCREENED AT THE WATER TABLE

STATIC WATER ELEVATIONS IGNORED AT MONITOR WELLS GW-3 AND EPA-R-1 DUE TO ANOMALOUS VALUES

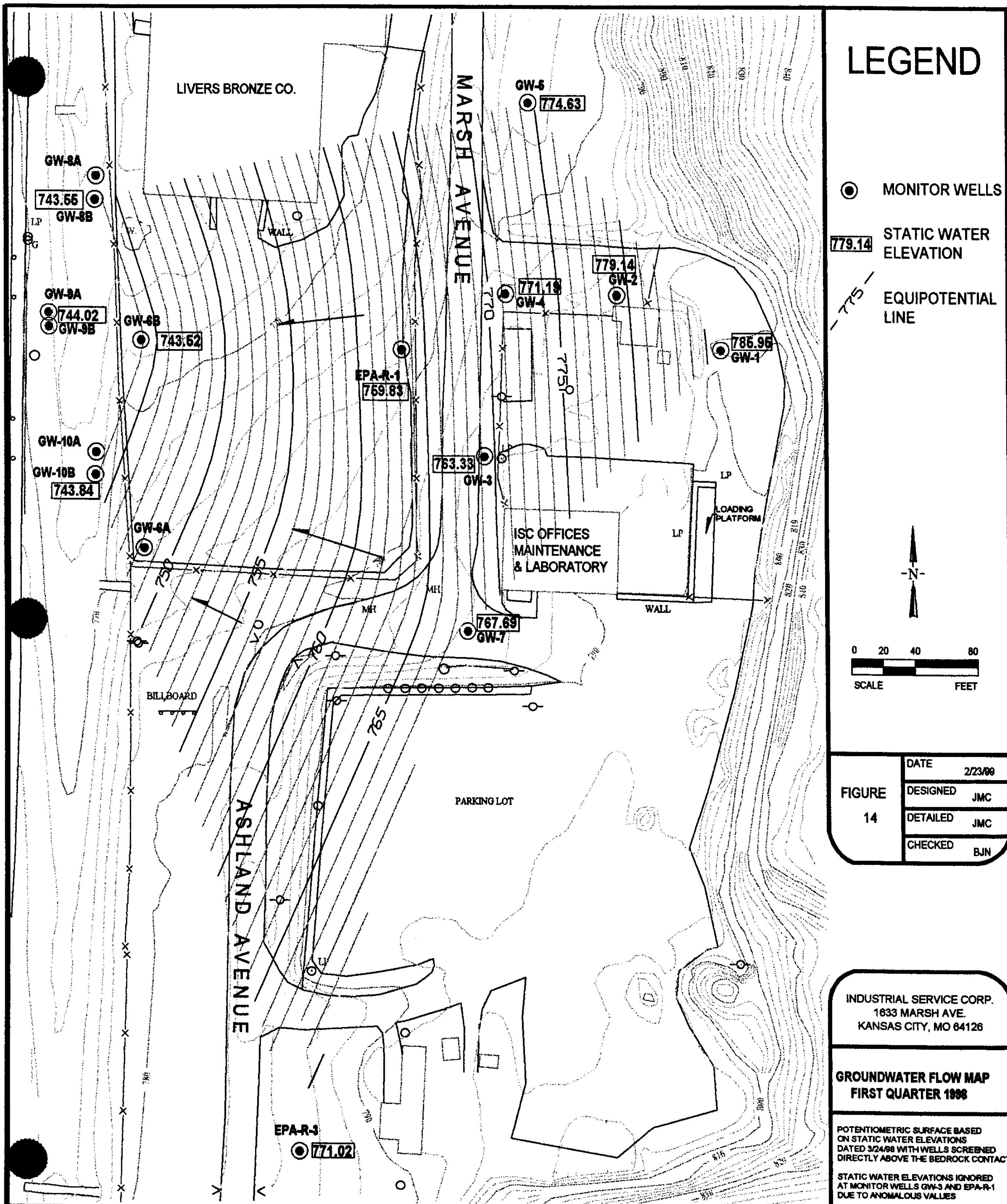


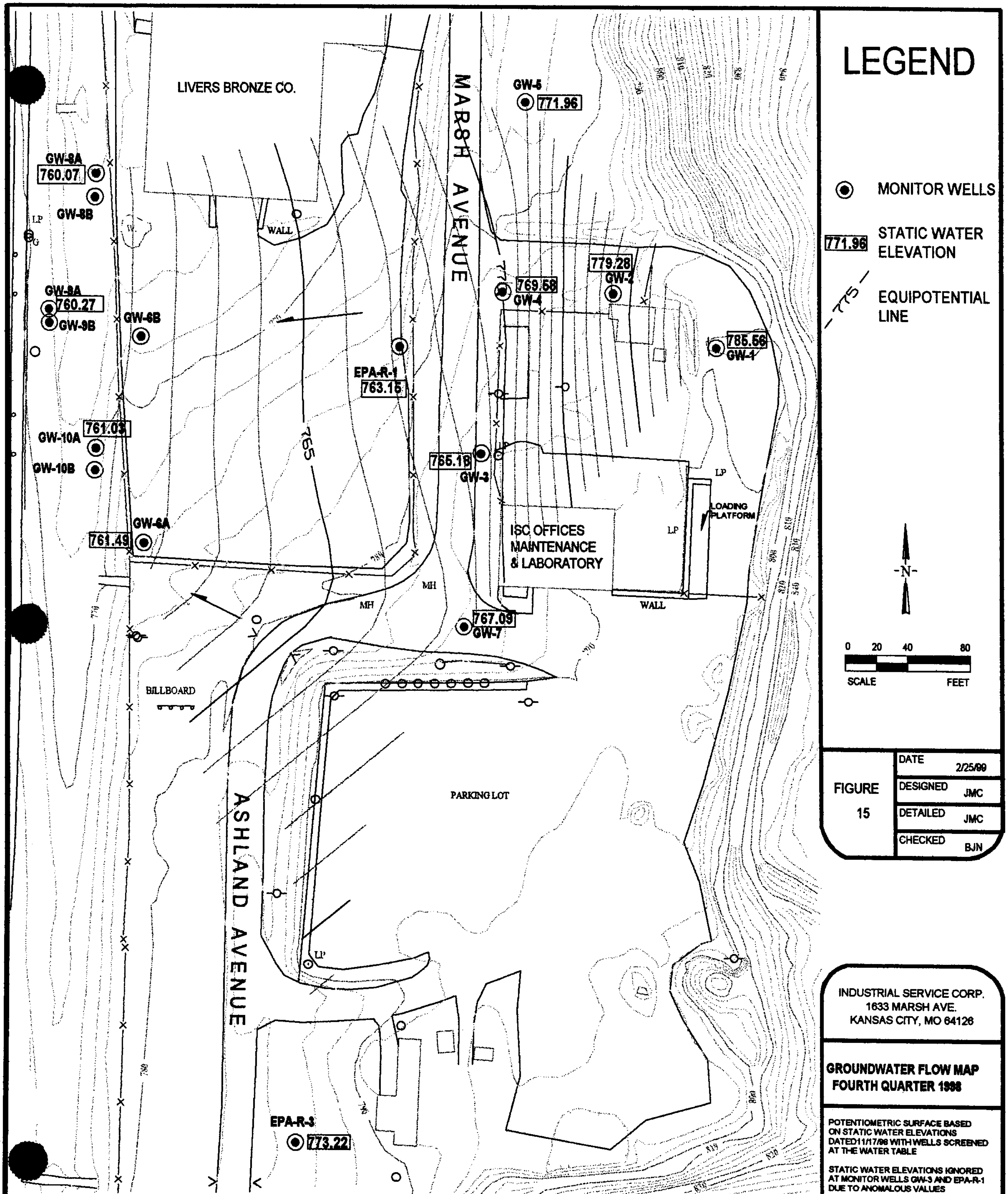
FIGURE 14	DATE 2/23/99
	DESIGNED JMC
	DETAILED JMC
	CHECKED BJN

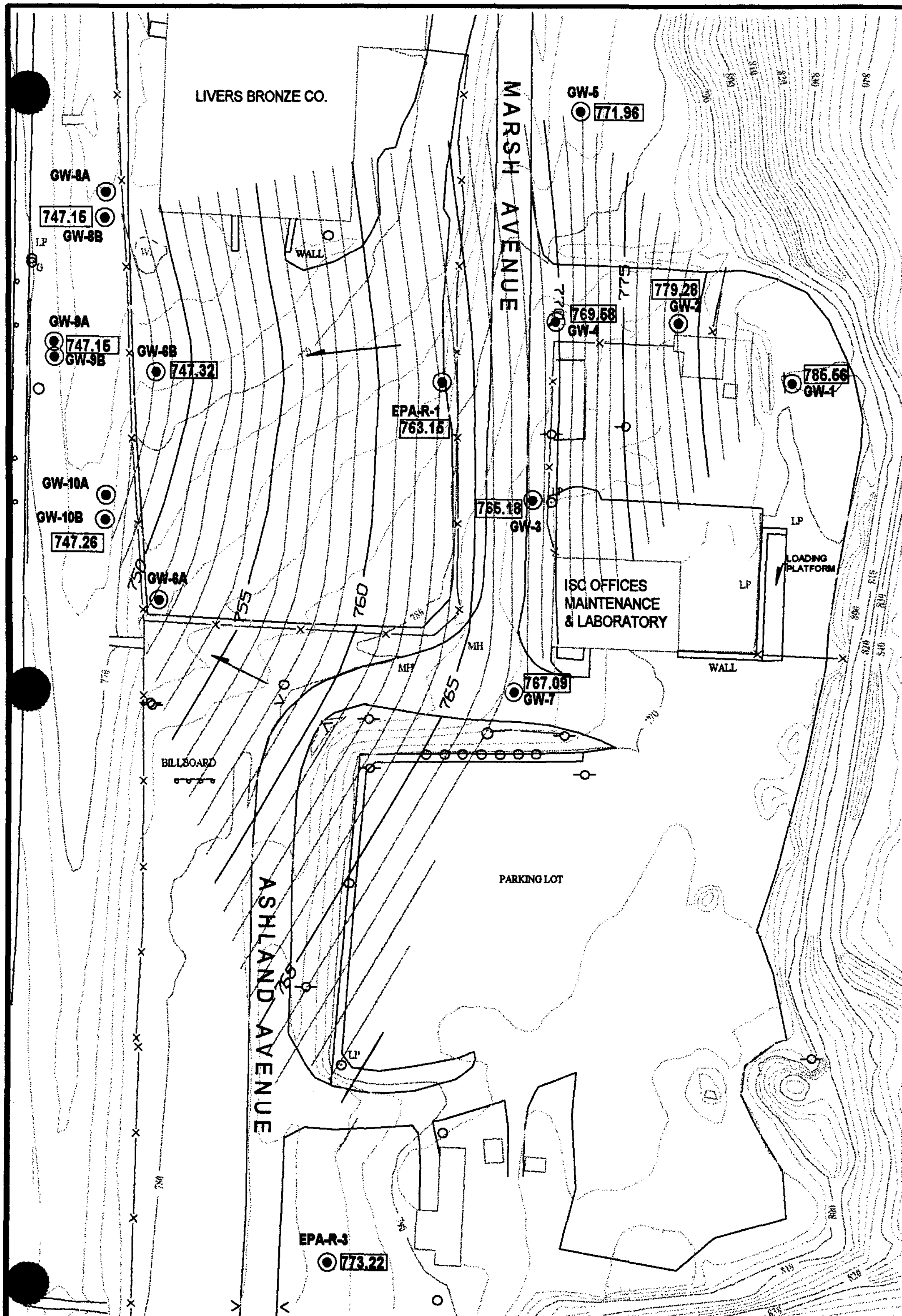
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

GROUNDWATER FLOW MAP
FIRST QUARTER 1998

POTENTIOMETRIC SURFACE BASED ON STATIC WATER ELEVATIONS DATED 3/24/98 WITH WELLS SCREENED DIRECTLY ABOVE THE BEDROCK CONTACT

STATIC WATER ELEVATIONS IGNORED AT MONITOR WELLS GW-3 AND EPA-R-1 DUE TO ANOMALOUS VALUES


LEGEND
MONITOR WELLS
771.96 STATIC WATER ELEVATION
775 EQUIPOTENTIAL LINE
-N-
0 20 40 80
SCALE FEET
FIGURE 15
DATE 2/25/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
GROUNDWATER FLOW MAP
FOURTH QUARTER 1998
POTENTIOMETRIC SURFACE BASED ON STATIC WATER ELEVATIONS DATED 11/17/98 WITH WELLS SCREENED AT THE WATER TABLE
STATIC WATER ELEVATIONS IGNORED AT MONITOR WELLS GW-3 AND EPA-R-1 DUE TO ANOMALOUS VALUES
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
ISC OFFICES MAINTENANCE & LABORATORY
LOADING PLATFORM
PARKING LOT
BILLBOARD
WALL
GW-5
771.96
GW-8A
760.07
GW-8B
GW-9A
760.27
GW-9B
GW-6B
EPA-R-1
763.15
GW-4
769.58
GW-2
779.28
GW-1
785.56
GW-10A
761.03
GW-10B
GW-3
765.18
GW-6A
761.49
GW-7
767.09
EPA-R-3
773.22
765



LEGEND

MONITOR WELLS

771.96 STATIC WATER ELEVATION

775 EQUIPOTENTIAL LINE

N

0 20 40 80

SCALE FEET

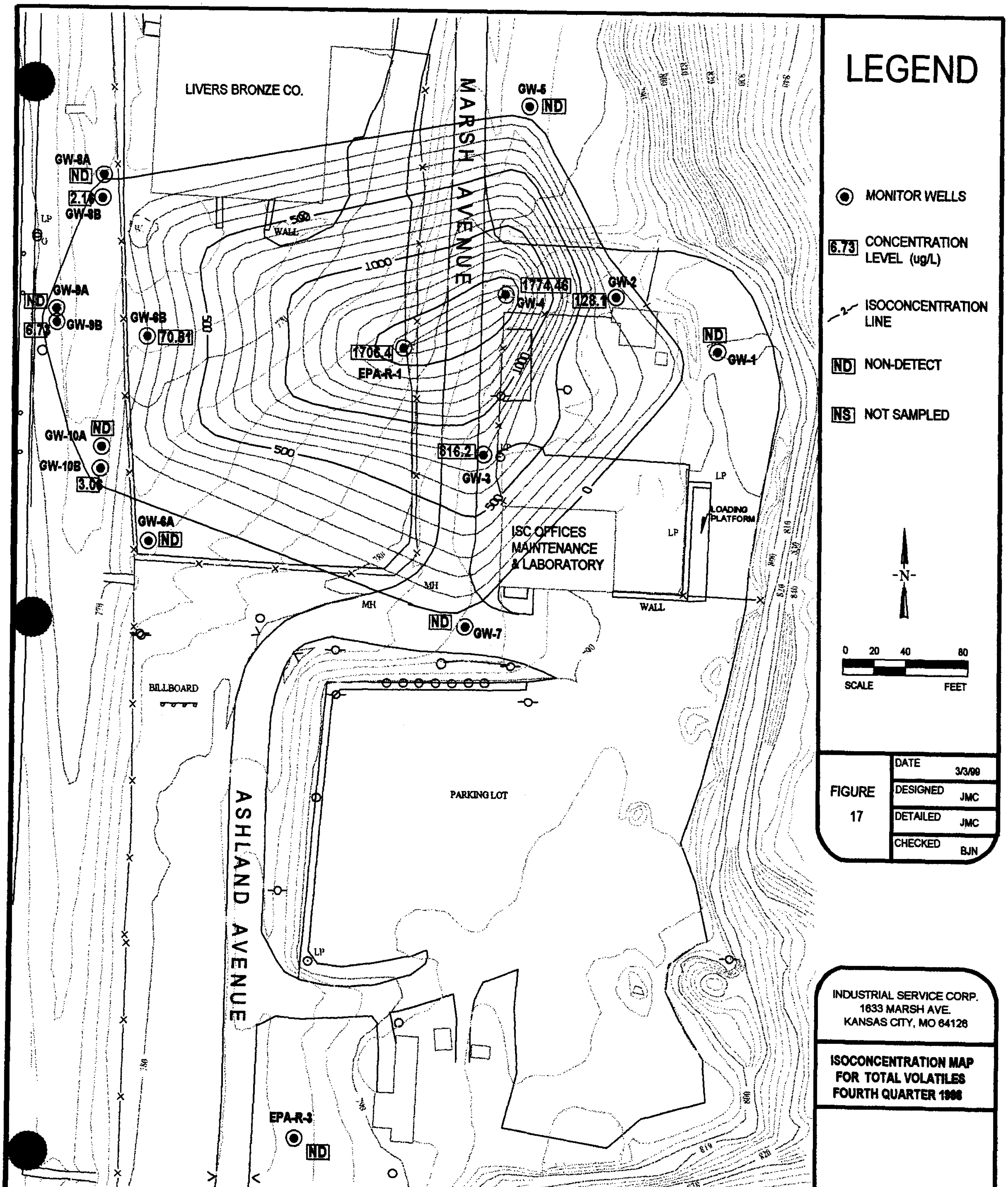
FIGURE 16	DATE 2/25/99
	DESIGNED JMC
	DETAILED JMC
	CHECKED BJN

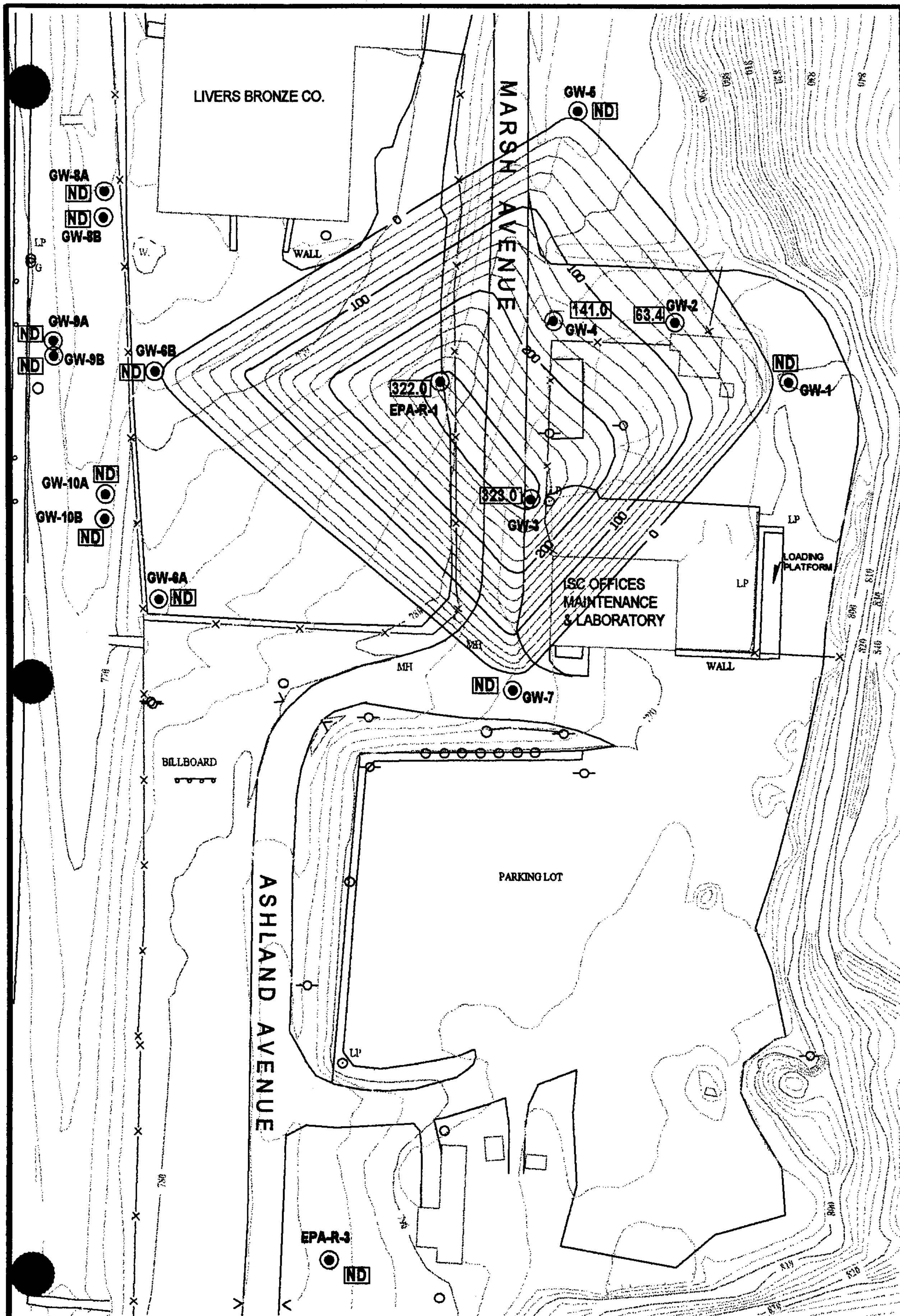
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

**GROUNDWATER FLOW MAP
FOURTH QUARTER 1998**

POTENTIOMETRIC SURFACE BASED ON STATIC WATER ELEVATIONS DATED 11/17/98 WITH WELLS SCREENED DIRECTLY ABOVE THE BEDROCK CONTACT

STATIC WATER ELEVATIONS IGNORED AT MONITOR WELL GW-3 DUE TO ANOMALOUS VALUES


LIVERS BRONZE CO.
MARSH AVENUE
GW-5
ND
GW-8A
ND
2.16
GW-8B
LP
WALL
500
1000
GW-9A
ND
6.73
GW-9B
GW-6B
70.81
500
1774.46
GW-4
128.1
GW-2
ND
GW-1
1706.4
EPA-R-1
1000
GW-10A
ND
GW-10B
3.06
500
616.2
GW-3
500
0
LP
LOADING PLATFORM
GW-6A
ND
ISC OFFICES
MAINTENANCE
& LABORATORY
LP
MH
MH
WALL
ND
GW-7
BILLBOARD
PARKING LOT
ASHLAND AVENUE
LP
EPA-R-3
ND
LEGEND
MONITOR WELLS
6.73 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 17
DATE 3/3/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR TOTAL VOLATILES
FOURTH QUARTER 1998



LEGEND

- MONITOR WELLS
- 63.4 CONCENTRATION LEVEL (ug/L)
- ISOCONCENTRATION LINE
- ND NON-DETECT
- NS NOT SAMPLED

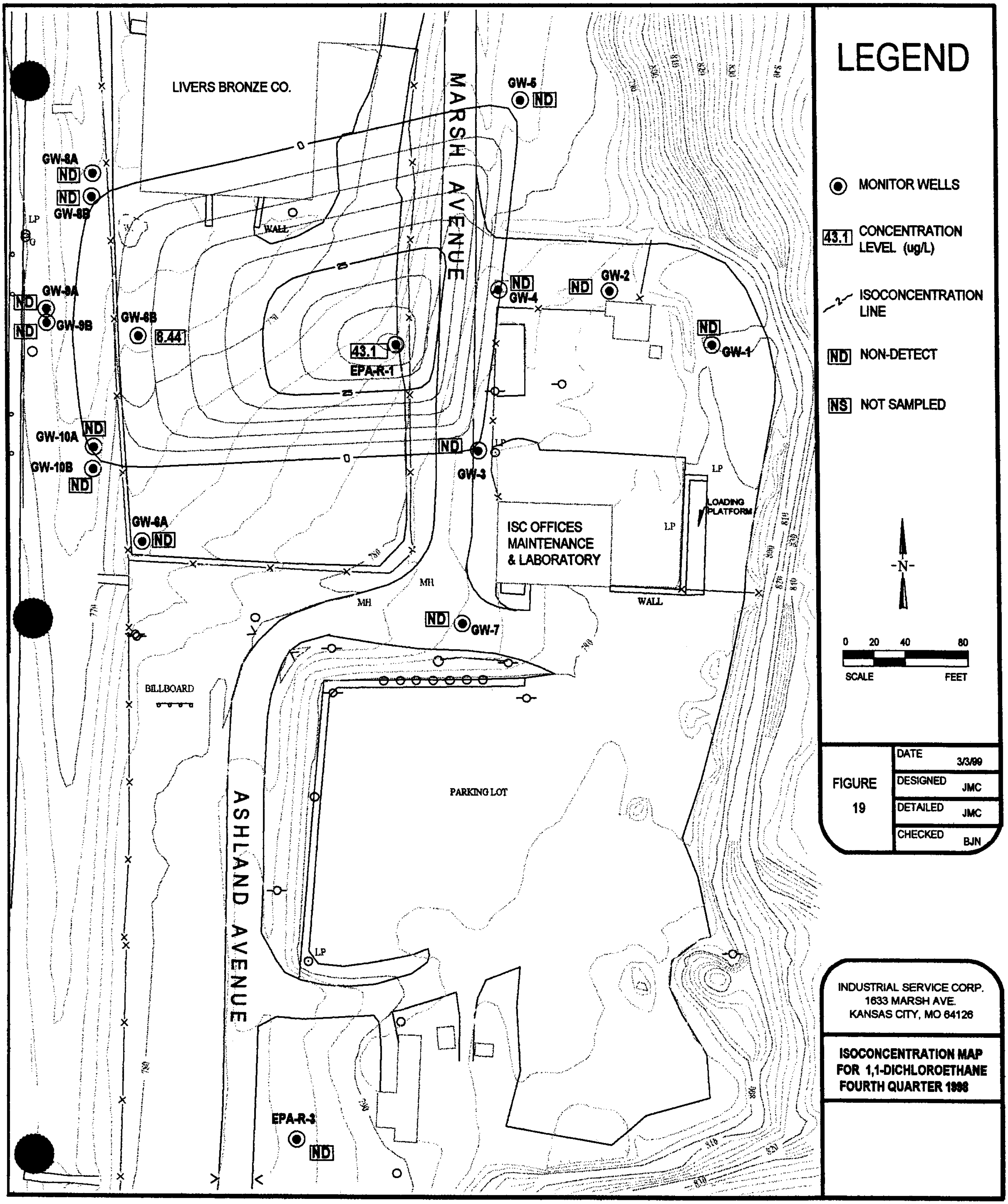
N

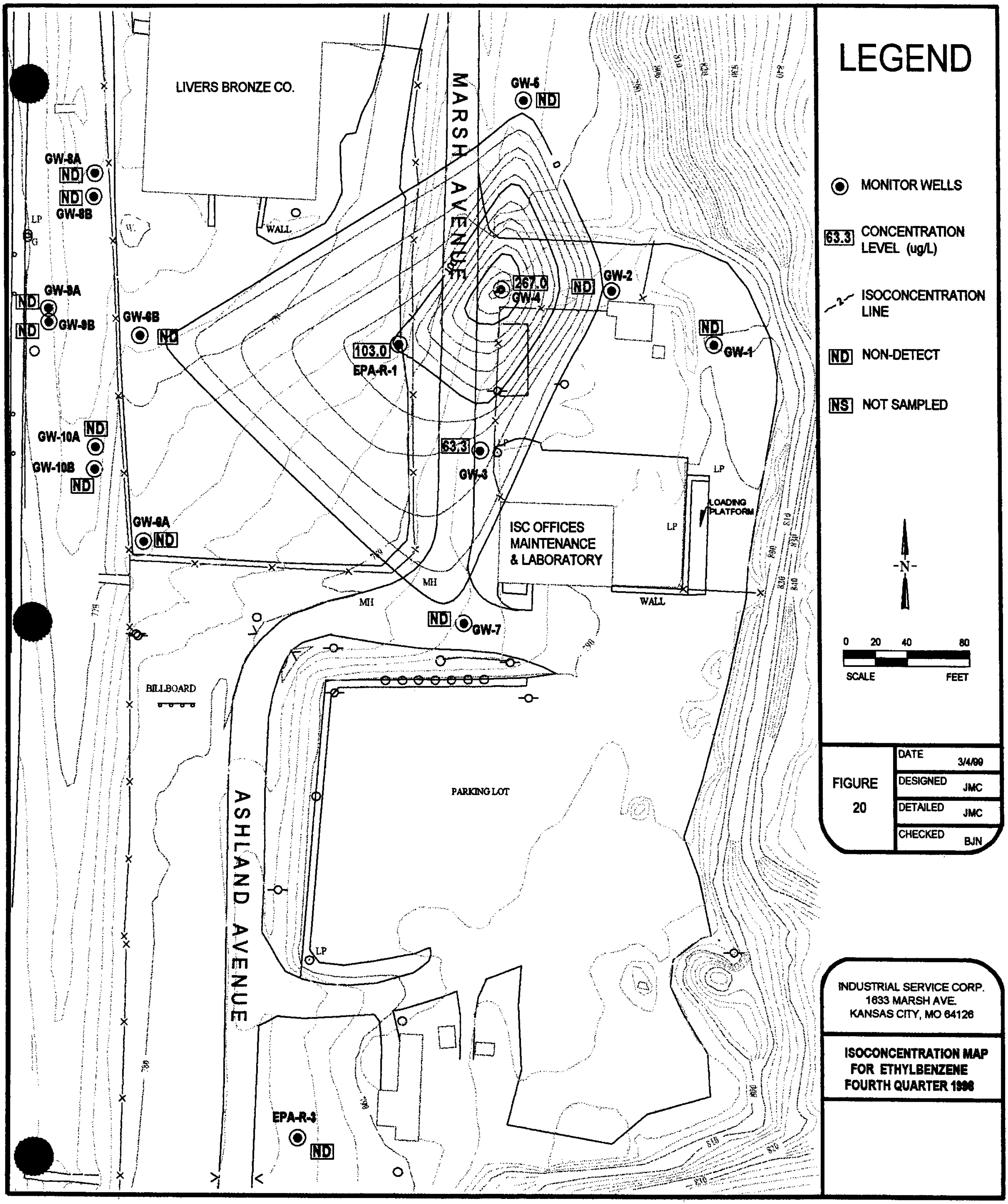
0 20 40 80
SCALE FEET

FIGURE 18	DATE 3/3/99
	DESIGNED JMC
	DETAILED JMC
	CHECKED BJN

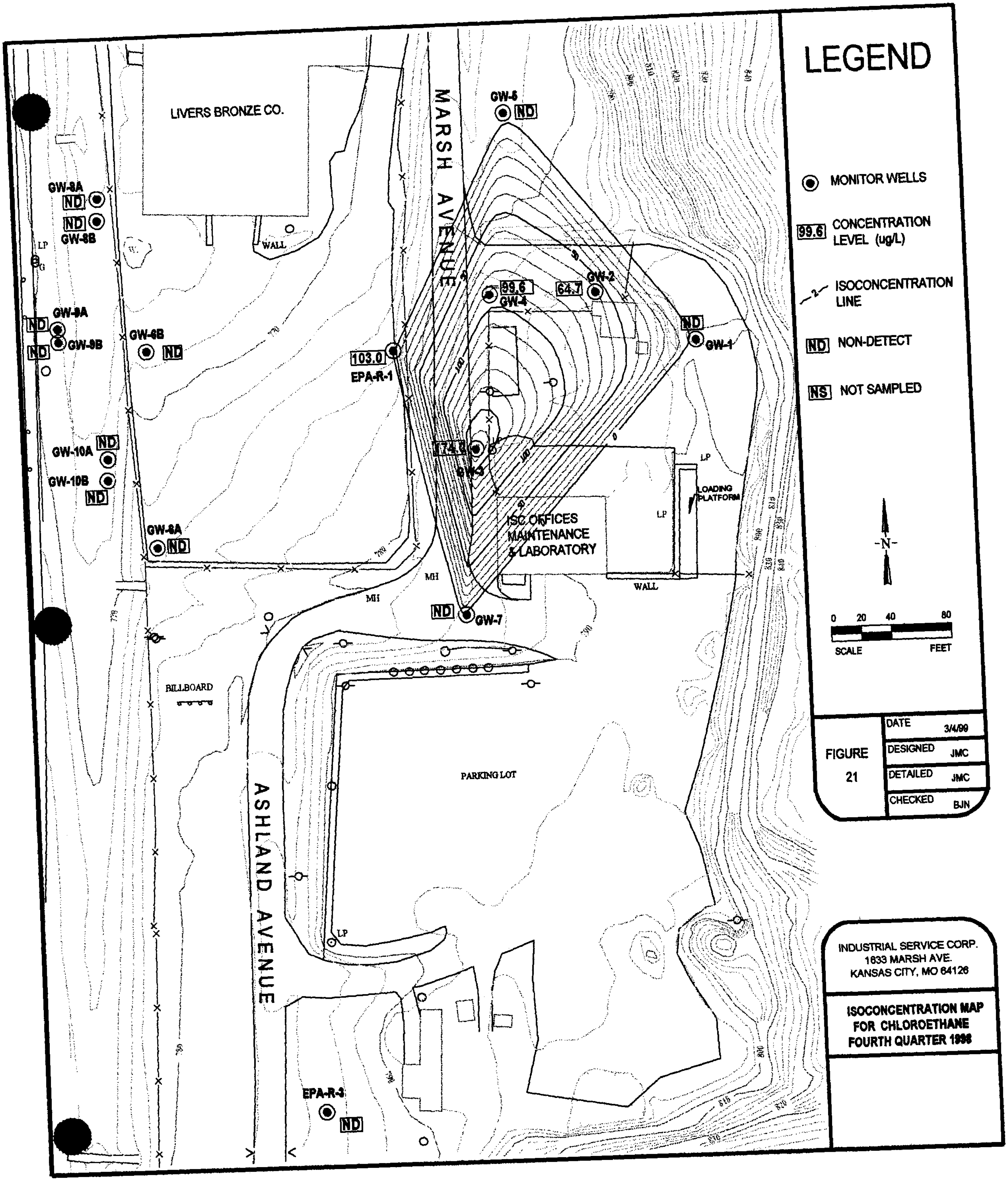
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

ISOCONCENTRATION MAP FOR BENZENE FOURTH QUARTER 1998

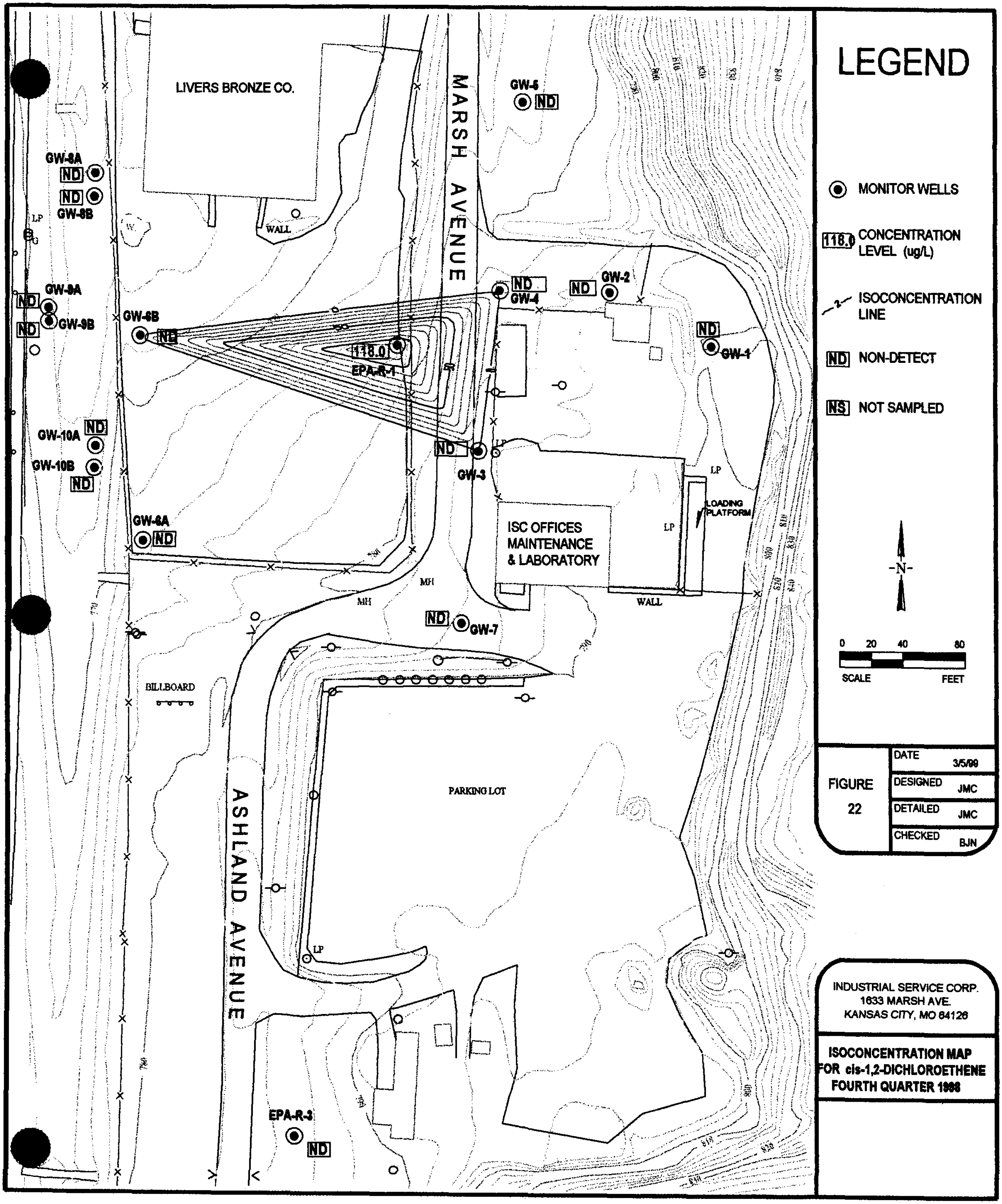

LEGEND
MONITOR WELLS
43.1 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
0 20 40 80
SCALE
FEET
N
FIGURE 19
DATE 3/3/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP FOR 1,1-DICHLOROETHANE FOURTH QUARTER 1998
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B 8.44
43.1 EPA-R-1
GW-4 ND
GW-2 ND
GW-1 ND
GW-10A ND
GW-10B ND
GW-3 ND
GW-6A ND
GW-7 ND
EPA-R-3 ND
ISC OFFICES MAINTENANCE & LABORATORY
LOADING PLATFORM
WALL
BILLBOARD
PARKING LOT
MH
LP



LEGEND
MONITOR WELLS
63.3 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B ND
GW-10A ND
GW-10B ND
GW-6A ND
267.0 GW-4
ND GW-2
ND GW-1
103.0 EPA-R-1
63.3 GW-3
ND GW-7
EPA-R-3 ND
ISC OFFICES MAINTENANCE & LABORATORY
LOADING PLATFORM
WALL
BILLBOARD
PARKING LOT
LP
MH
N
0 20 40 80
SCALE FEET
FIGURE 20
DATE 3/4/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP FOR ETHYLBENZENE FOURTH QUARTER 1998



LEGEND
MONITOR WELLS
99.6 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
SCALE 0 20 40 80 FEET
FIGURE 21
DATE 3/4/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP FOR CHLOROETHANE FOURTH QUARTER 1998
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
ISC OFFICES MAINTENANCE & LABORATORY
LOADING PLATFORM
PARKING LOT
BILLBOARD
WALL
GW-5 ND
GW-2 64.7
GW-4 99.6
GW-1 ND
EPA-R-1 103.0
GW-3 174.8
GW-7 ND
GW-6A ND
GW-6B ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-10A ND
GW-10B ND
EPA-R-3 ND



LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5
ND
GW-8A
ND
ND
GW-8B
GW-9A
ND
GW-9B
ND
GW-6B
ND
118.0
EPA-R-1
GW-4
ND
GW-2
ND
GW-1
ND
GW-10A
ND
GW-10B
ND
GW-3
ND
GW-6A
ND
GW-7
ND
EPA-R-3
ND
WALL
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
BILLBOARD
PARKING LOT
MH
LP
LEGEND
MONITOR WELLS
118.0 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 22
DATE 3/5/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR cis-1,2-DICHLOROETHENE
FOURTH QUARTER 1998

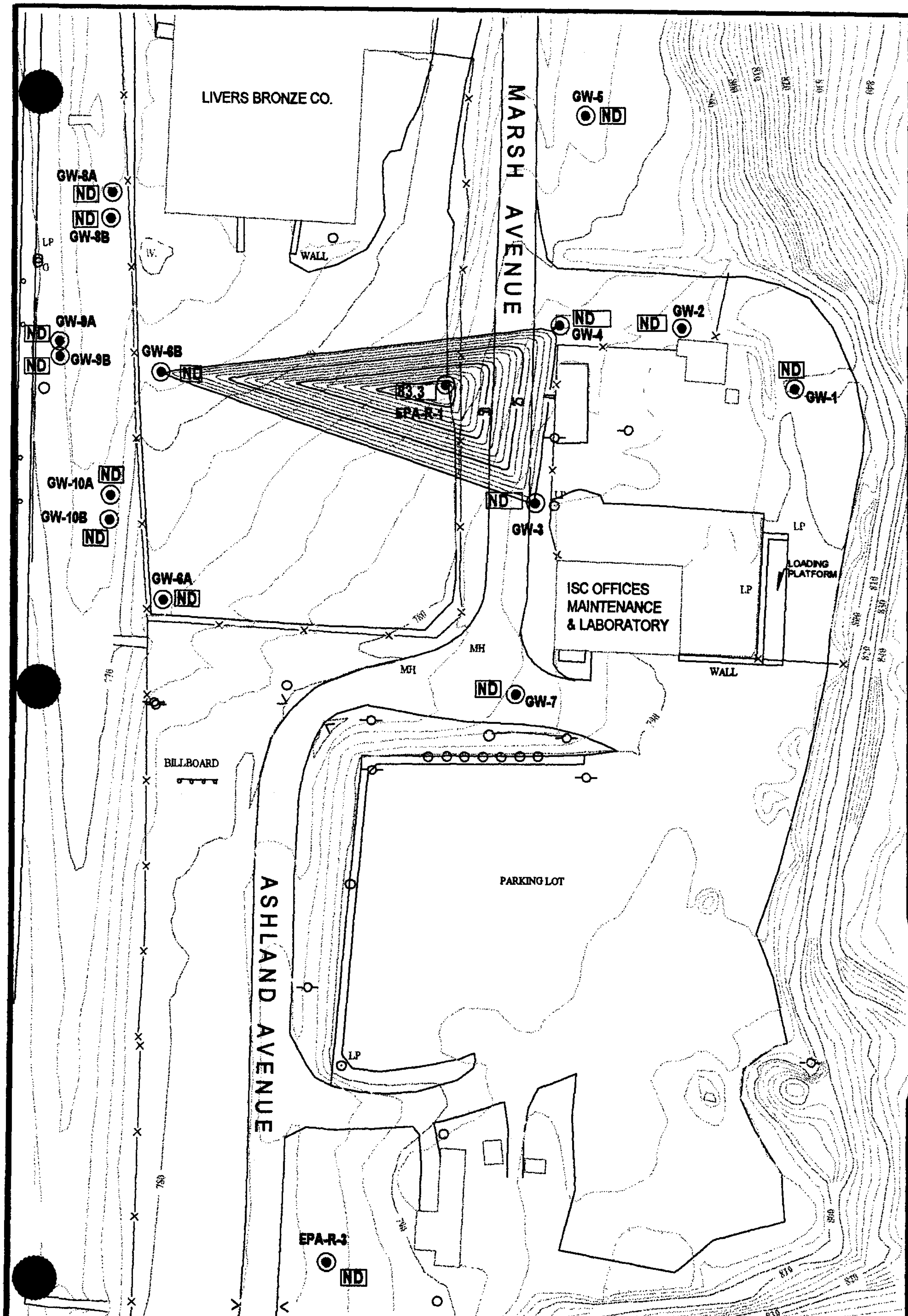


FIGURE	DATE	3/5/99
23	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

ISOCONCENTRATION MAP FOR 1,1,1-TRICHLOROETHANE FOURTH QUARTER 1998

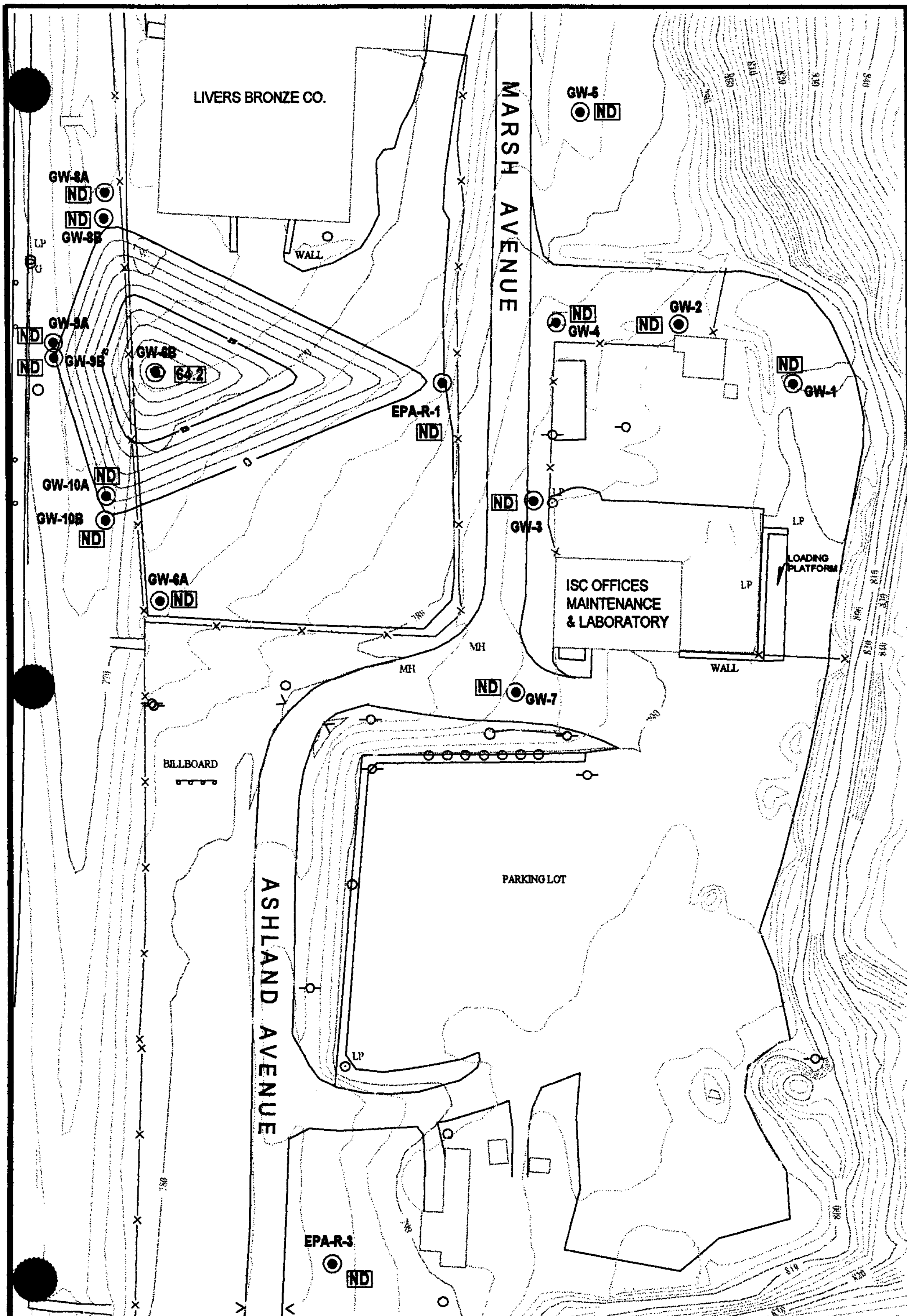
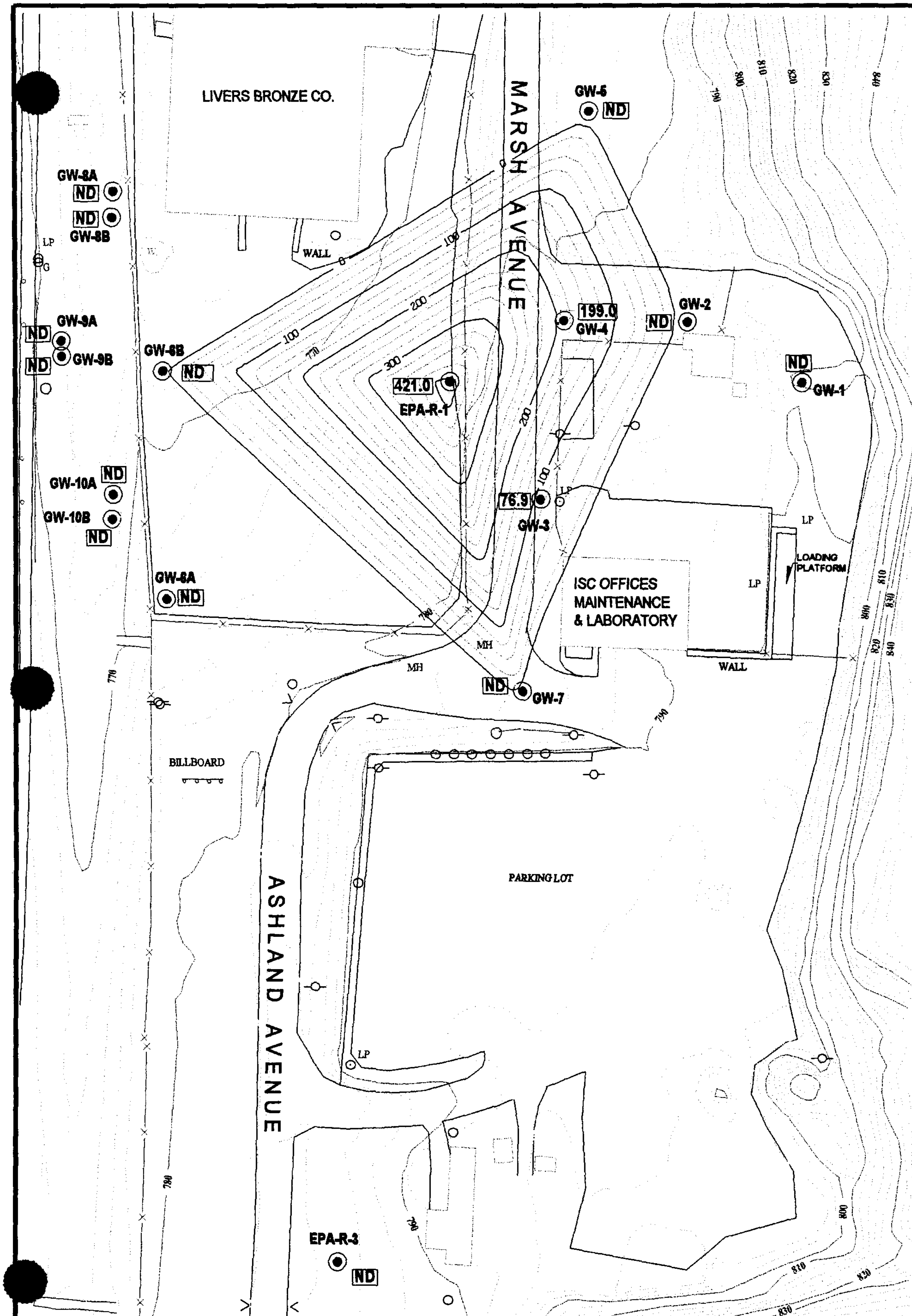


FIGURE 24	
DATE	3/8/99
DESIGNED	JMC
DETAILED	JMC
CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

ISOCONCENTRATION MAP FOR TRICHLOROETHENE FOURTH QUARTER 1998



LEGEND

- MONITOR WELLS
- 76.9 CONCENTRATION LEVEL (ug/L)
- ISOCONCENTRATION LINE
- ND NON-DETECT
- NS NOT SAMPLED

-N-

0 20 40 80
SCALE FEET

FIGURE 25	DATE 3/4/99
	DESIGNED JMC
	DETAILED JMC
	CHECKED BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

ISOCONCENTRATION MAP FOR TOLUENE FOURTH QUARTER 1998

REV:
1. 1/17/00 CHANGED CONCENTRATION AT WELL GW-6B TO FROM 64.2 TO ND.

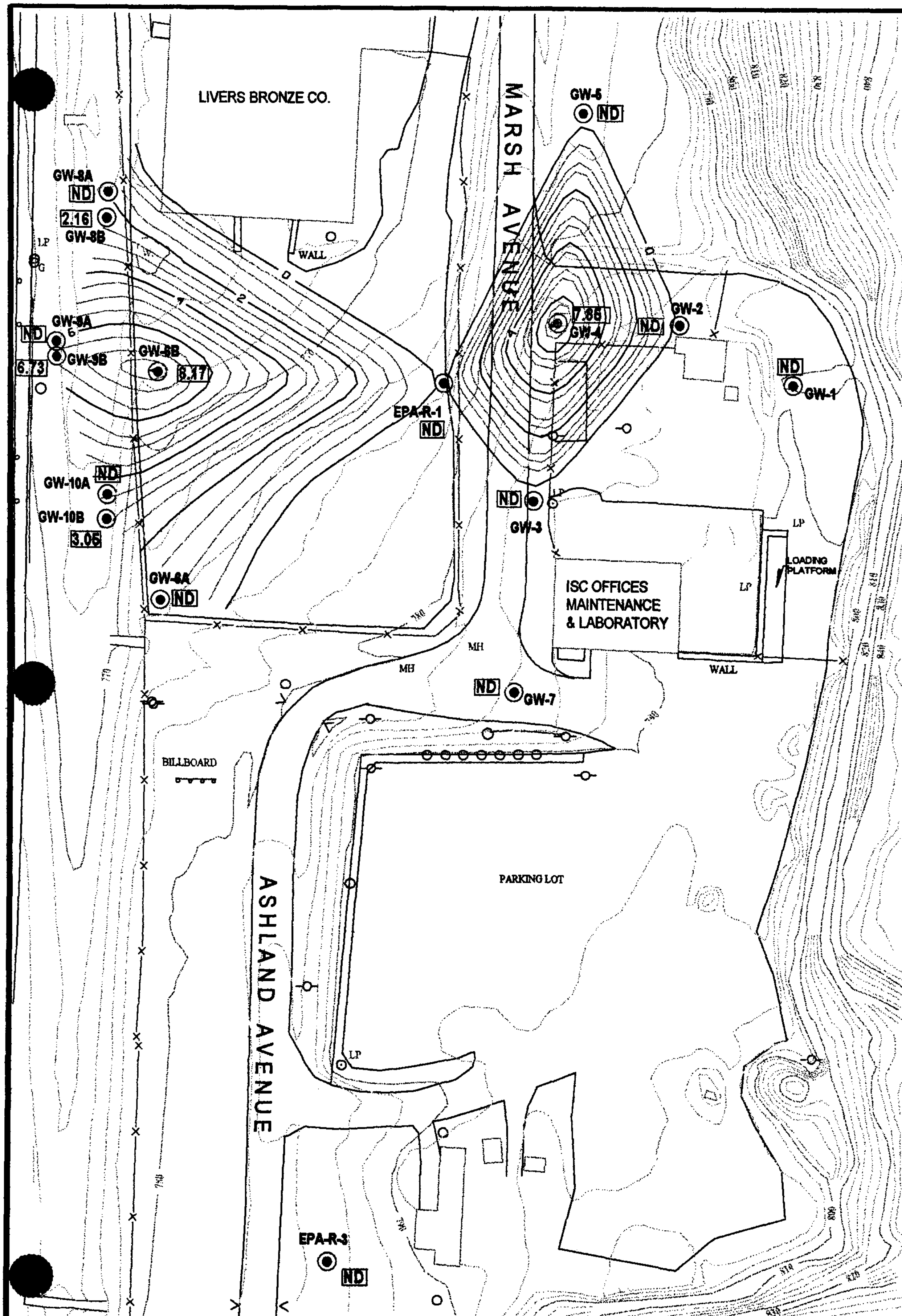


FIGURE 26

DATE	3/8/99
DESIGNED	JMC
DETAILED	JMC
CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

ISOCONCENTRATION MAP FOR VINYL CHLORIDE FOURTH QUARTER 1998

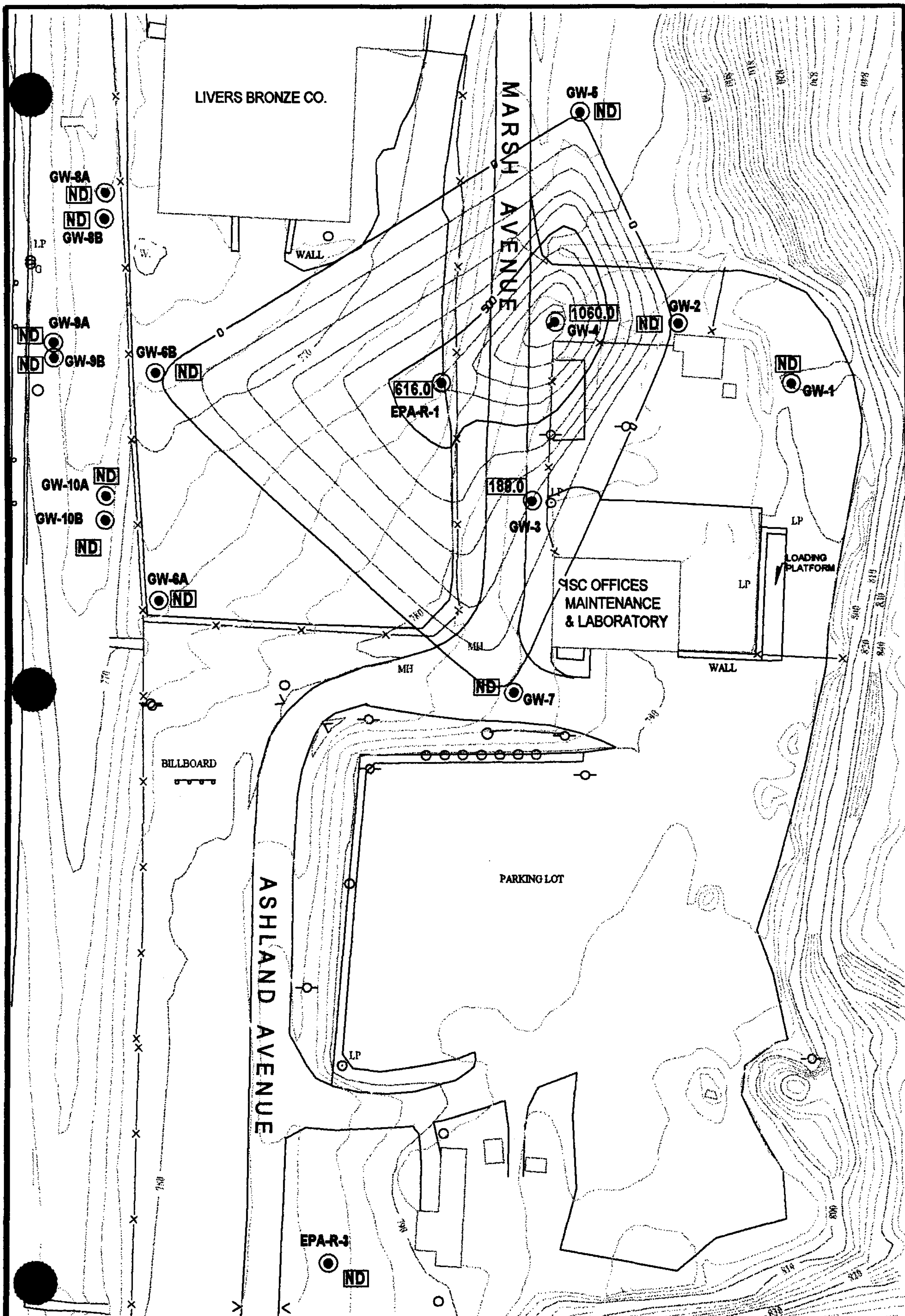
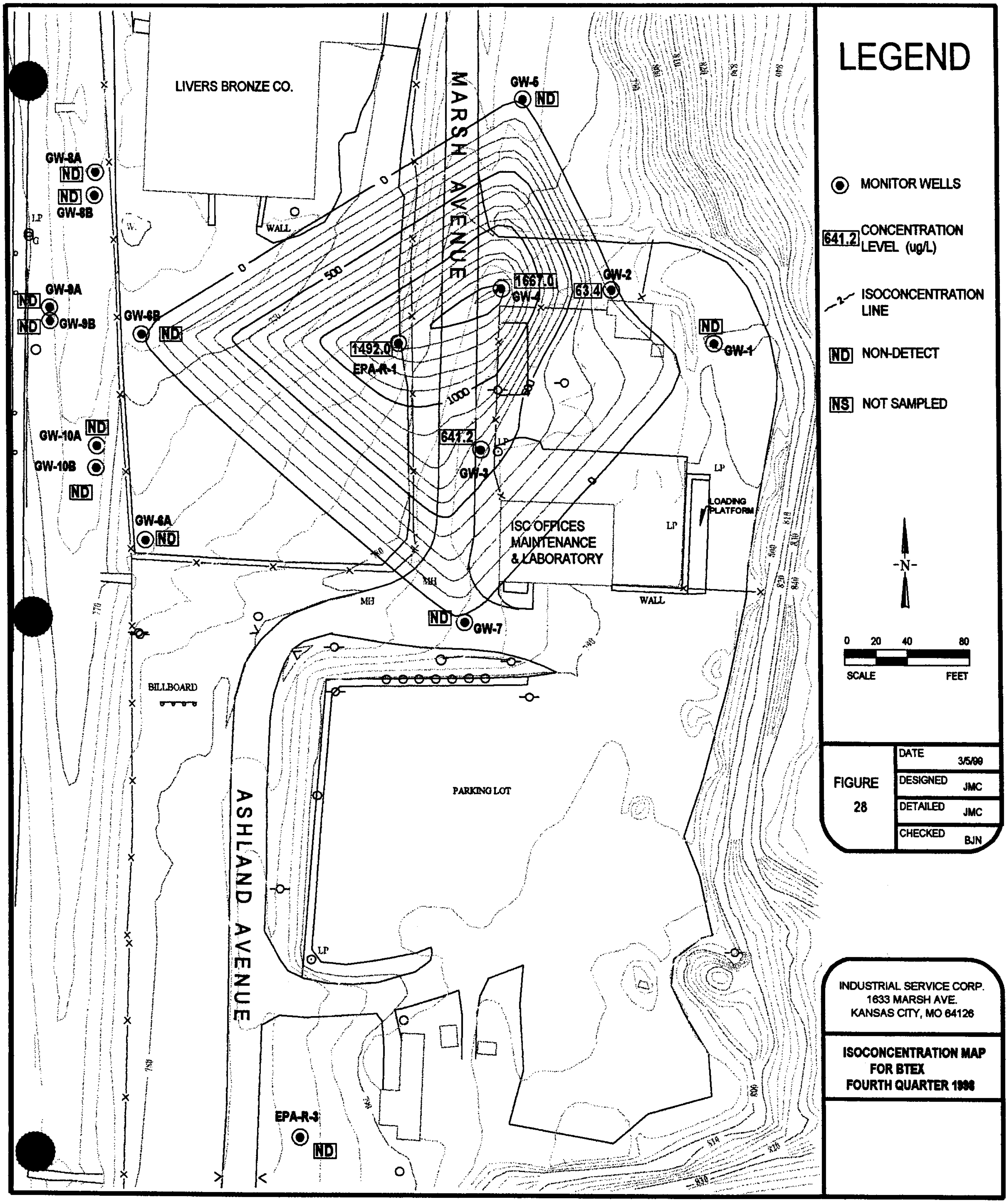
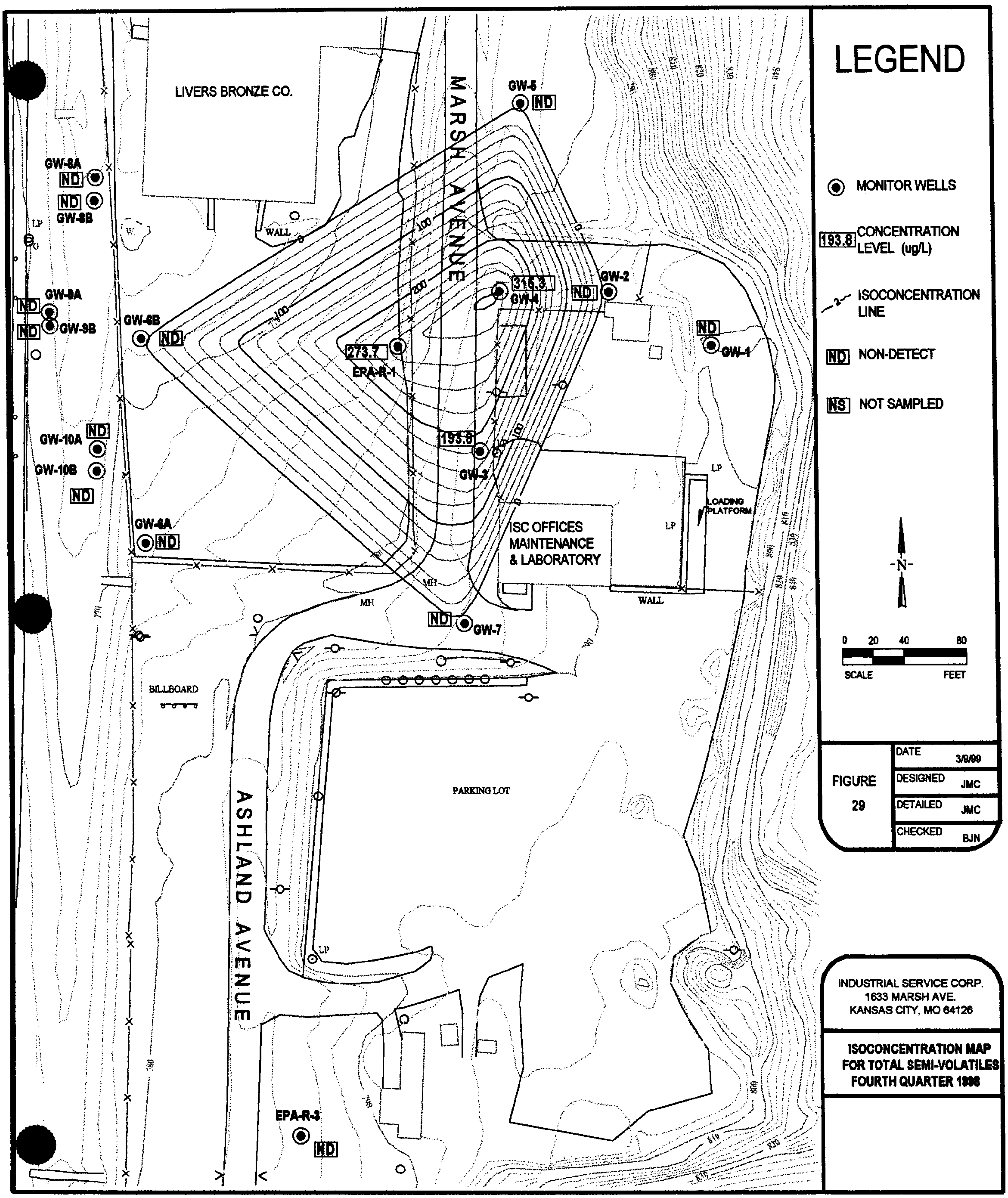


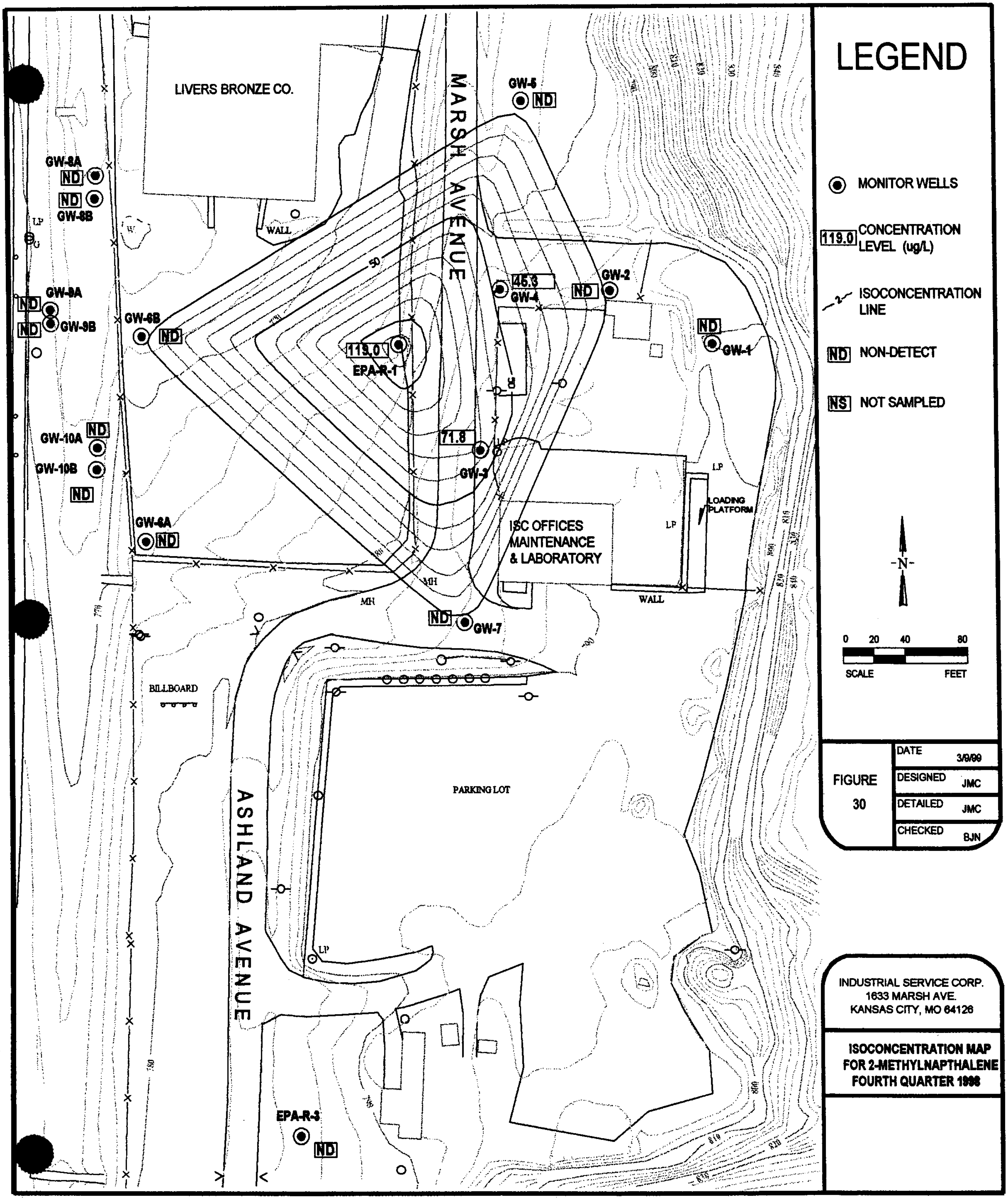
FIGURE 27	DATE	3/4/99
	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

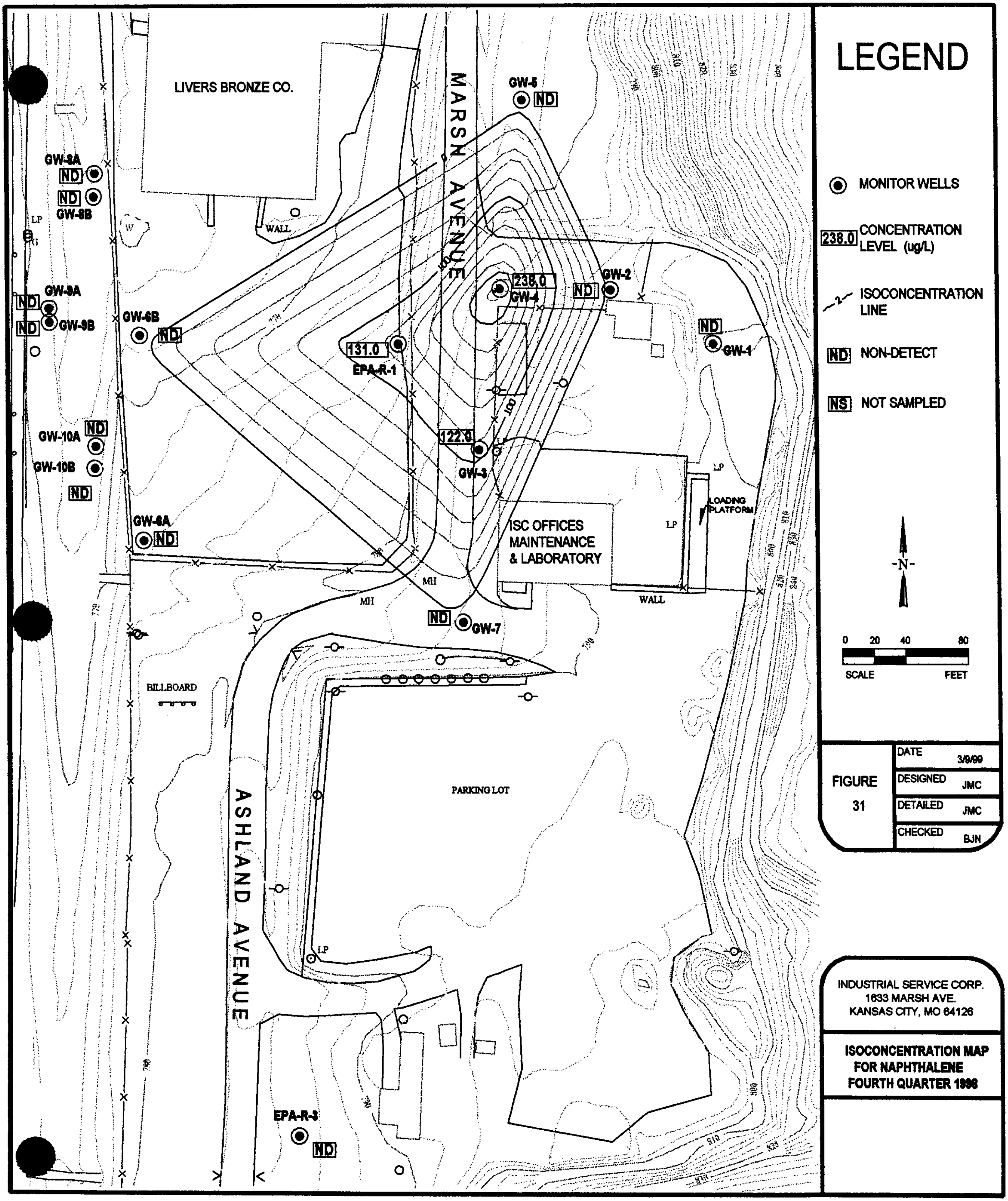
ISOCONCENTRATION MAP FOR XYLENE FOURTH QUARTER 1998

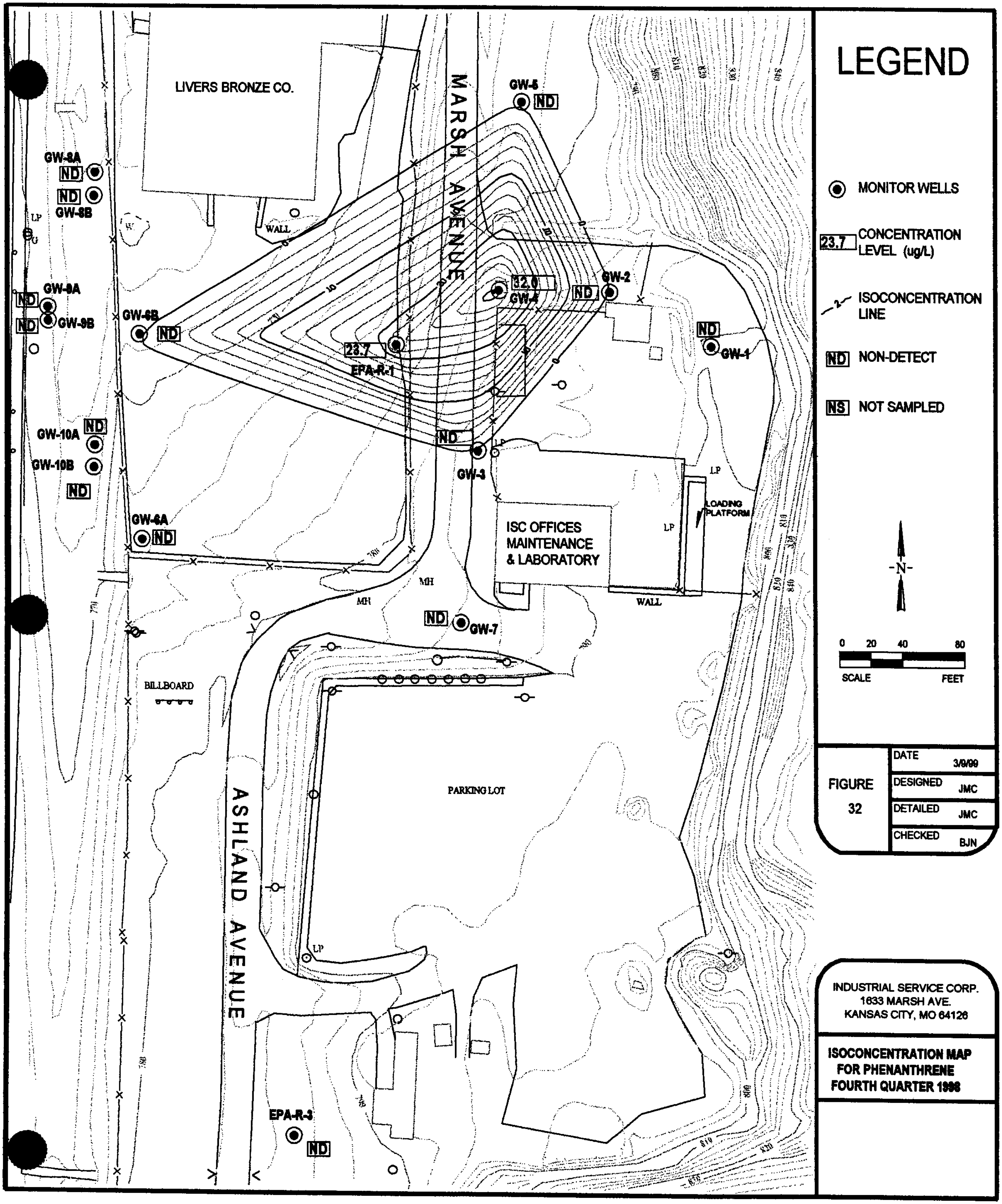

LEGEND
MONITOR WELLS
641.2 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 28
DATE 3/5/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR BTEX
FOURTH QUARTER 1998
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B ND
1667.0 GW-4
63.4 GW-2
ND GW-1
1492.0 EPA-R-1
641.2 GW-3
GW-10A ND
GW-10B ND
GW-6A ND
ND GW-7
EPA-R-3 ND
500
1000
0
WALL
ISC OFFICES MAINTENANCE & LABORATORY
LOADING PLATFORM
BILLBOARD
PARKING LOT
MH
LP


LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5 ND
GW-8A ND
GW-8B ND
GW-9A ND
GW-9B ND
GW-6B ND
GW-2 ND
GW-4 316.3
EPA-R-1 273.7
GW-1 ND
GW-10A ND
GW-10B ND
GW-3 193.8
GW-6A ND
GW-7 ND
EPA-R-3 ND
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
WALL
BILLBOARD
PARKING LOT
LEGEND
MONITOR WELLS
193.8 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 29
DATE 3/9/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR TOTAL SEMI-VOLATILES
FOURTH QUARTER 1998

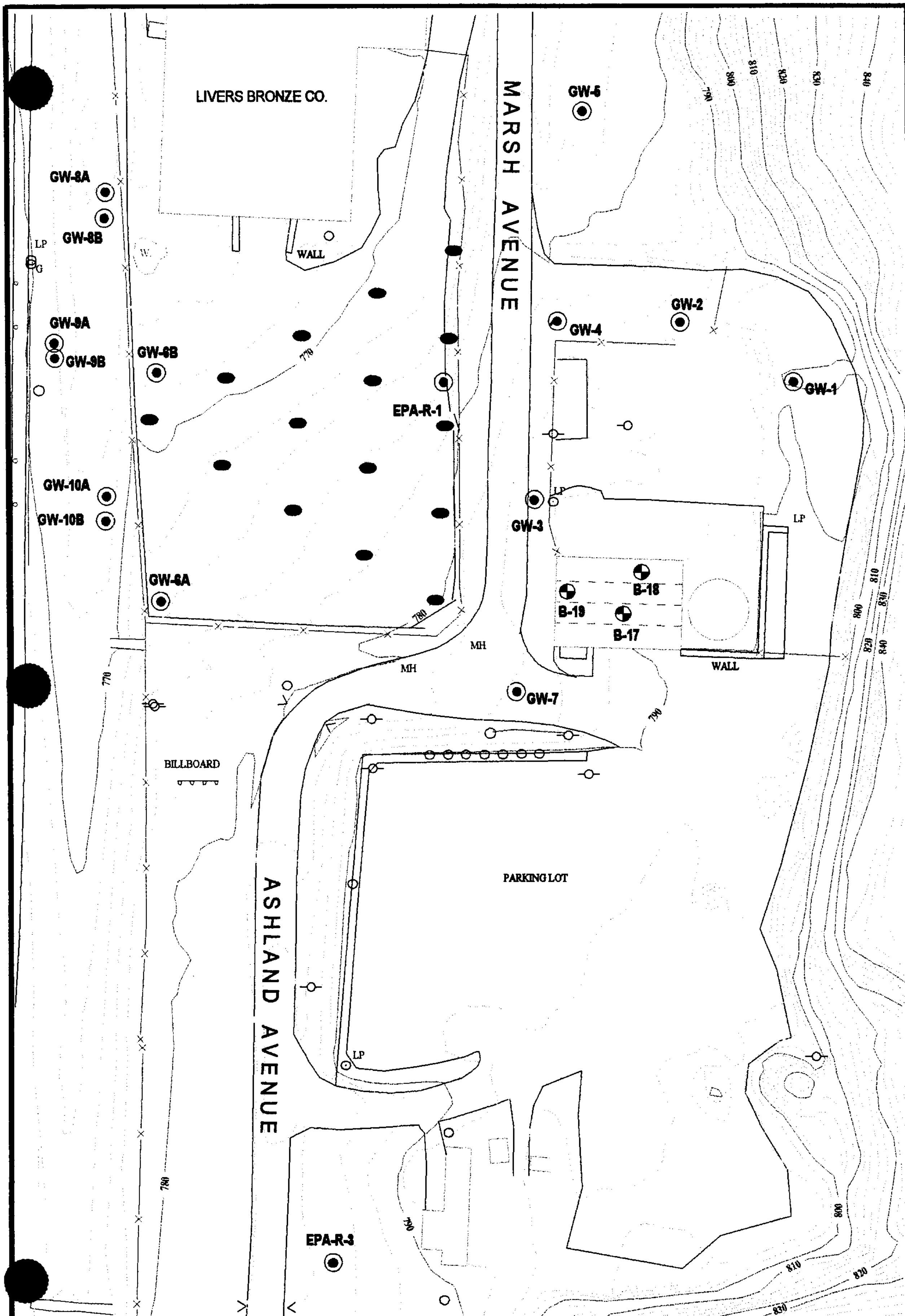


LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5
ND
GW-8A
GW-8B
GW-9A
GW-9B
GW-6B
GW-10A
GW-10B
GW-6A
GW-2
GW-4
45.3
GW-1
119.0
EPA-R-1
71.8
GW-3
GW-7
EPA-R-3
50
WALL
LP
MH
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING
PLATFORM
BILLBOARD
PARKING LOT
LEGEND
MONITOR WELLS
119.0 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 30
DATE 3/9/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR 2-METHYLNAPTHALENE
FOURTH QUARTER 1998


LEGEND
MONITOR WELLS
238.0 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5
GW-8A
GW-8B
GW-9A
GW-9B
GW-6B
GW-10A
GW-10B
GW-6A
GW-4
GW-2
GW-1
GW-3
GW-7
EPA-R-1
EPA-R-3
238.0
131.0
122.0
ND
WALL
LOADING PLATFORM
ISC OFFICES MAINTENANCE & LABORATORY
BILLBOARD
PARKING LOT
LP
MH
N
0 20 40 80
SCALE FEET
FIGURE 31
DATE 3/9/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP FOR NAPHTHALENE FOURTH QUARTER 1998



LIVERS BRONZE CO.
MARSH AVENUE
ASHLAND AVENUE
GW-5
ND
GW-8A
ND
ND
GW-8B
GW-9A
ND
ND
GW-9B
GW-6B
ND
32.0
GW-4
ND
GW-2
ND
GW-1
23.7
EPA-R-1
GW-10A
ND
GW-10B
ND
ND
GW-3
GW-6A
ND
ISC OFFICES
MAINTENANCE
& LABORATORY
LOADING PLATFORM
WALL
ND
GW-7
BILLBOARD
PARKING LOT
EPA-R-3
ND
LEGEND
MONITOR WELLS
23.7 CONCENTRATION LEVEL (ug/L)
ISOCONCENTRATION LINE
ND NON-DETECT
NS NOT SAMPLED
N
0 20 40 80
SCALE FEET
FIGURE 32
DATE 3/9/99
DESIGNED JMC
DETAILED JMC
CHECKED BJN
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
ISOCONCENTRATION MAP
FOR PHENANTHRENE
FOURTH QUARTER 1998



LEGEND

MONITOR WELLS

REPLACEMENT SOIL BORINGS

PROBE LOCATIONS

N

0 20 40 80

SCALE FEET

FIGURE 33	DATE	3/10/99
	DESIGNED	JMC
	DETAILED	JMC
	CHECKED	BJN

INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126

WORK PLAN ADDENDUM

REV:
1. 1/17/00 RE-LOCATED PROBE LOCATIONS TO INCREASE COVERAGE AREA.

Attachment 3

BACKGROUND GEOCHEMISTRY

Background Geochemistry of Some Rocks, Soils, Plants, and Vegetables in the Conterminous United States

By JON J. CONNOR *and* HANSFORD T. SHACKLETTE

With sections on FIELD STUDIES

By RICHARD J. EBENS, JAMES A. ERDMAN, A. T. MIESCH,
RONALD R. TIDBALL, *and* HARRY A. TOURTELOT

STATISTICAL STUDIES IN FIELD GEOCHEMISTRY

GEOLOGICAL SURVEY PROFESSIONAL PAPER 574-F

Geochemical summaries for 147 landscape units sampled in 25 field studies

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1975

TABLE 7.—*Arsenic in rocks, unconsolidated geologic deposits, soils, and dry plants*

[Explanation of column headings: Study No. refers to study described in text; method of analysis (in entheses) refers to method listed in table 1. Ratio, number of samples in which the element was nd in measurable concentrations to number of samples analyzed. Mean, geometric mean. Deviation, geometric deviation. Error, geometric error attributed to laboratory procedures. Leaders (--) in figure column indicate no data available]

Sample, and collection locality	Study No. and method of analysis	Ratio	Mean (ppm)	Deviation	Error	Observed range (ppm)
ROCKS						
Granite						
Precambrian; Missouri	1 (6)	29:30	2.9	2.11	1.12	<1 - 19
Rhyolite						
Precambrian; Missouri	1 (6)	28:30	4.7	4.01	1.12	<1 - 300
Sandstone						
Roubidoux Formation; Missouri	4 (6)	7:12	1.1	1.57	1.62	<1 - 2.7
Pennsylvanian; Missouri, Kansas, and Oklahoma	6 (6)	29:32	4.3	2.51	1.62	<1 - 25
Chert						
Mississippian; Missouri, Oklahoma, and Arkansas	7 (6)	7:20	<1	--	--	<1 - 4.3
Shale						
Mississippian; Missouri, Oklahoma, and Arkansas	7 (6)	18:18	6.4	2.22	1.21	1.7 - 18
nsylvanian; Missouri, Kansas, nd Oklahoma	6 (6)	32:32	9.0	2.11	1.21	1.4 - 27
Limestone and dolomite						
Sauk sequence; Missouri and Arkansas	4 (6)	28:48	1.2	2.62	1.26	<1 - 17
Tippecanoe sequence; Missouri	10 (6)	3:12	.74	1.53	1.26	<1 - 1.5
Mississippian; Missouri, Oklahoma, and Arkansas	7 (6)	17:40	.83	2.58	1.26	<1 - 6.3
Pennsylvanian; Missouri, Kansas, and Oklahoma	6 (6)	27:32	2.5	2.95	1.26	<1 - 39
UNCONSOLIDATED GEOLOGIC DEPOSITS						
Carbonate residuum (terra rossa)						
On Gasconade Formation; Missouri	12 (6)	24:24	18	1.36	1.19	11 - 31
On Roubidoux Formation; Missouri	12 (6)	24:24	15	1.88	1.19	3.7 - 42
On Jefferson City, Cotter, and Powell Formations; Missouri and Arkansas	12 (6)	24:24	19	1.74	1.19	7.9 - 61
On Osagean rocks; Missouri	12 (6)	24:24	21	1.38	1.19	12 - 33
On Meramecian rocks; Missouri	12 (6)	24:24	21	1.37	1.19	8.7 - 34
Loess						
Missouri	13 (6)	24:24	8.3	1.38	--	3 - 13

ARSENIC

TABLE 7.—*Arsenic in rocks, unconsolidated geologic deposits, soils, and dry plants*—Continued

Sample, and collection locality	Study No. and method of analysis	Ratio	Mean (ppm)	Devia- tion	Error	Observed range (ppm)
		SOILS				
Cultivated						
Plow zone, corn field; Missouri						
Floodplain Forest	17 (6)	8:8	5.5	1.68	1.10	1.8 - 9.1
Glaciated Prairie	17 (6)	10:10	10	1.32	1.10	7.0 - 14
Unglaciated Prairie	17 (6)	10:10	10	1.47	1.10	4.8 - 15
Oak-hickory Forest	17 (6)	10:10	8.8	1.23	1.10	6.1 - 14
Plow zone, soybean field; Missouri						
Floodplain Forest	17 (6)	10:10	5.9	1.70	1.10	2.7 - 15
Glaciated Prairie	17 (6)	10:10	12	1.31	1.10	7.6 - 17
Unglaciated Prairie	17 (6)	8:8	11	1.52	1.10	5.5 - 24
Oak-hickory Forest	17 (6)	9:9	7.1	1.38	1.10	4.1 - 12
Plow zone, pasture field; Missouri						
Floodplain Forest	17 (6)	10:10	6.4	2.25	1.10	1.6 - 36
Glaciated Prairie	17 (6)	10:10	12	1.63	1.10	7.1 - 27
Unglaciated Prairie	17 (6)	10:10	9.3	1.41	1.10	5.1 - 14
Oak-hickory Forest	17 (6)	10:10	8.5	1.22	1.10	6.4 - 13
Surface horizon; Missouri	16 (6)	1,140:1,140	8.7	1.46	1.16	2.5 - 72
Uncultivated						
B horizon; Missouri						
Floodplain Forest	20 (6)	50:50	7.5	2.03	1.21	2.4 - 170
Glaciated Prairie	20 (6)	50:50	13	1.27	1.21	7.2 - 20
Unglaciated Prairie	20 (6)	50:50	12	1.55	1.21	3.4 - 38
Cedar Glade	20 (6)	50:50	8.4	1.73	1.21	2.6 - 22
Oak-hickory Forest	20 (6)	50:50	8.0	1.83	1.21	2.4 - 28
Oak-hickory-pine Forest	20 (6)	50:50	6.7	1.67	1.21	2.7 - 44
Cultivated and uncultivated						
Surface horizon; Colorado	22 (6)	168:168	5.4	2.20	1.36	1.2 - 24
B horizon; Eastern United States	21 (6)	413:420	5.4	2.24	--	<.2 - 73
B horizon; Western United States	21 (6)	489:490	6.1	1.82	--	<.2 - 97
		DRY PLANTS				
Native species						
Buckbush; Oak-hickory Forest, Missouri	20 (6)	1:14	<0.25	--	--	<0.25 - 0.25
Sumac, smooth; Glaciated Prairie, Missouri	20 (6)	1:9	<.25	--	--	<.25 - 1.5